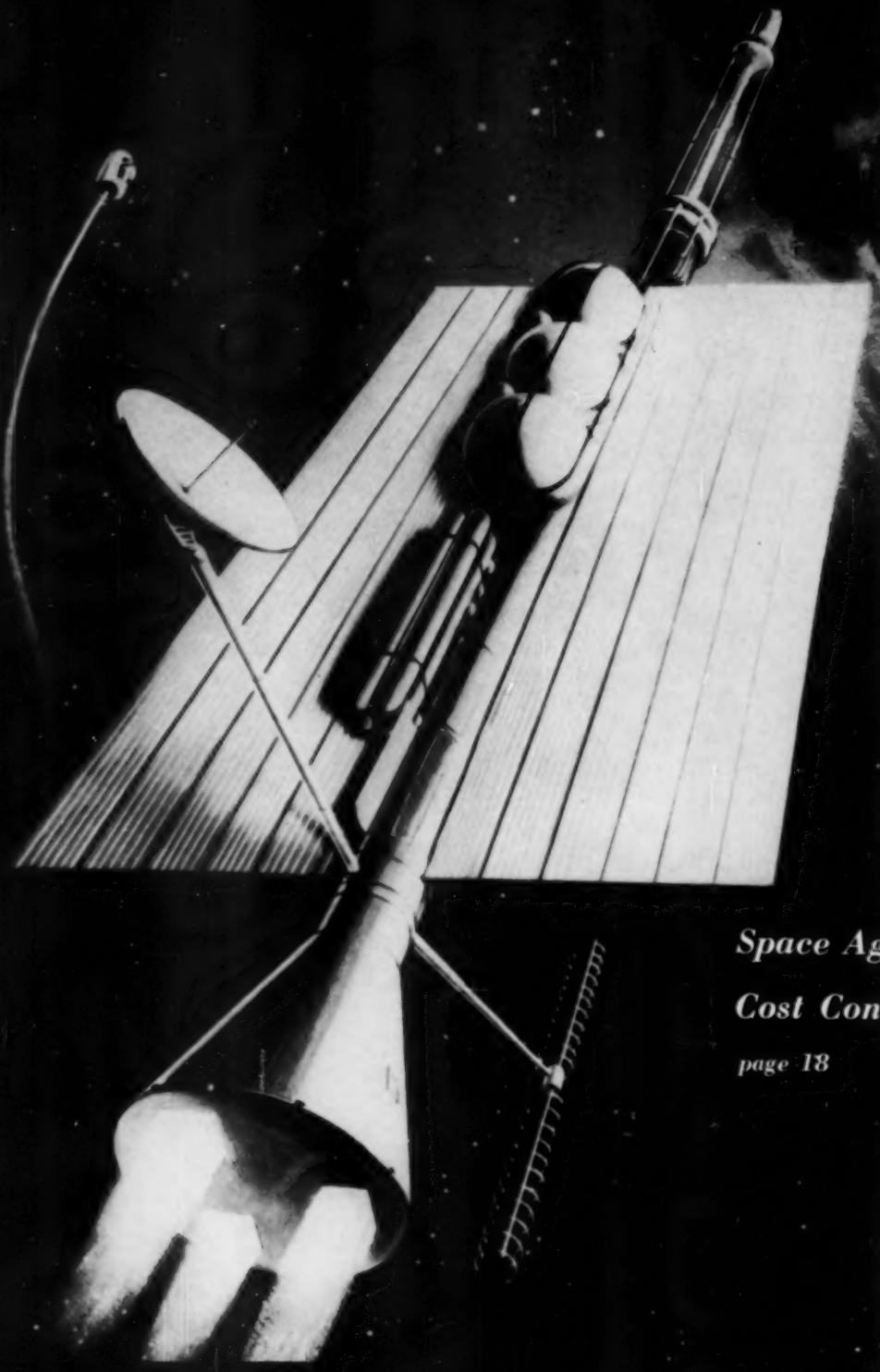
October 1960

MANAGEMENT *and* BUSINESS AUTOMATION

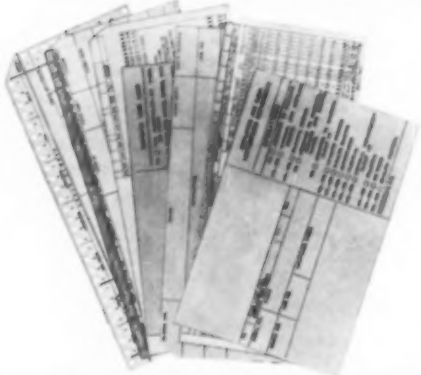


Space Age Cost Control

page 18

Here is a completely new labor cost data computer

it's the new Calculagraph 500 Series



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As a result, in a unit card system, the Calculagraph 500 Series can save time, clerical costs, and attain greater accuracy in your input data. It can be installed without disrupting your present factory-to-office data collection procedure. We can show you how if you will send samples of your present job cards for analysis.

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CALCULAGRAPH Company

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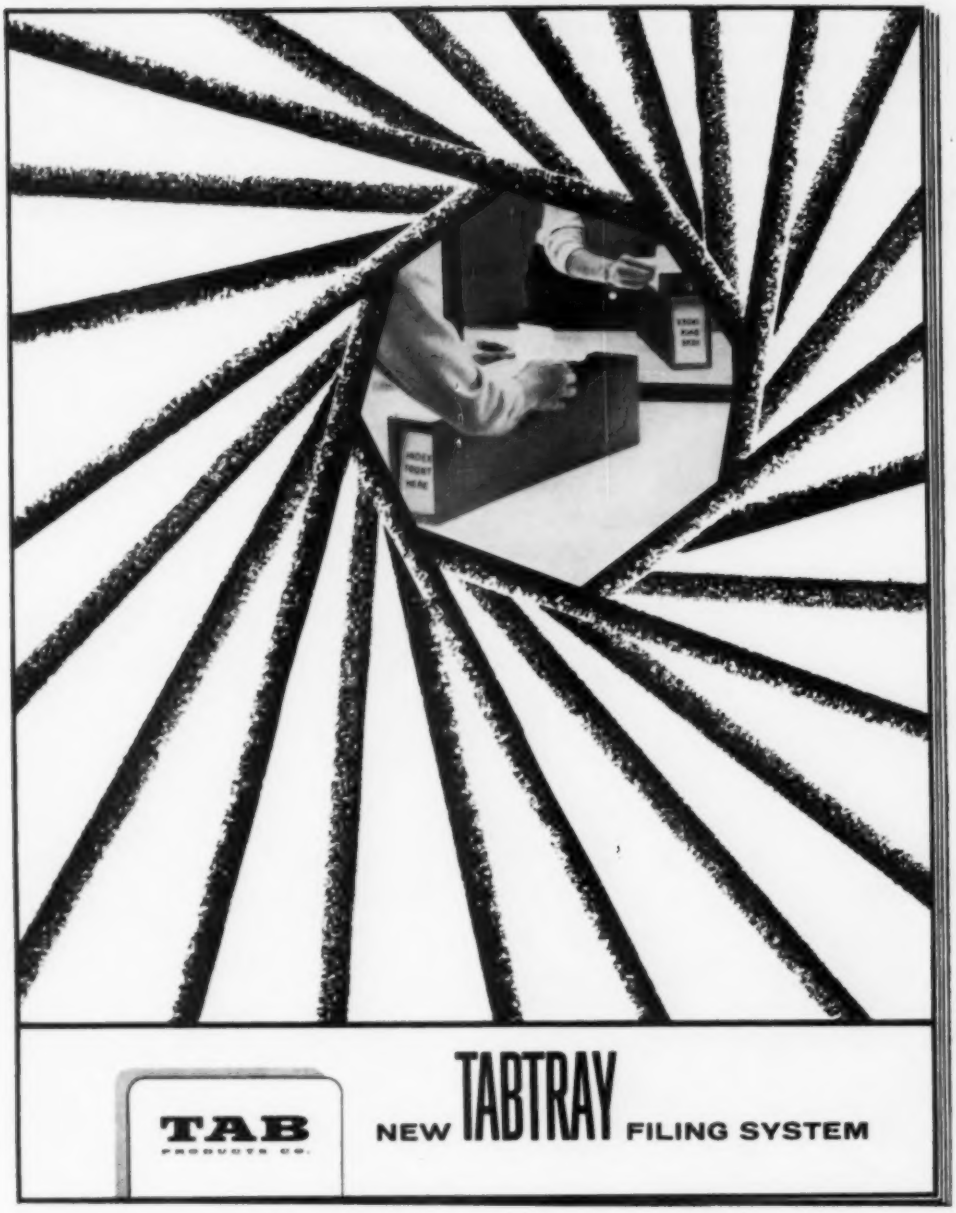

Prestidigitatorial *

Shown above is an interesting, brand new 8-page brochure on our new line of TABTRAY equipment for vertical card handling. The ink is still practically wet, and the news is hot! We have mailed it out to around 30,000 of our friends in the data processing field, but we realize that this group, for whom we have names and addresses and with whom we have transacted (or hope to transact) business, does not include everyone who is interested. That's why we are running this ad! If you don't have a copy, ask your local representative (we have around 40 offices and about 125 representatives selling our equipment throughout the nation) or write direct to us:

**Prestidigitatorial* means sleight of hand—and could well describe the almost magic efficiency and speed of vertical card handling with our new Tabtrays.

TAB PRODUCTS CO., 995 MARKET STREET, SAN FRANCISCO 3.

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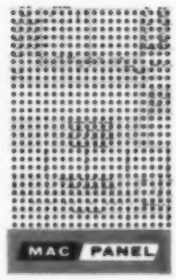

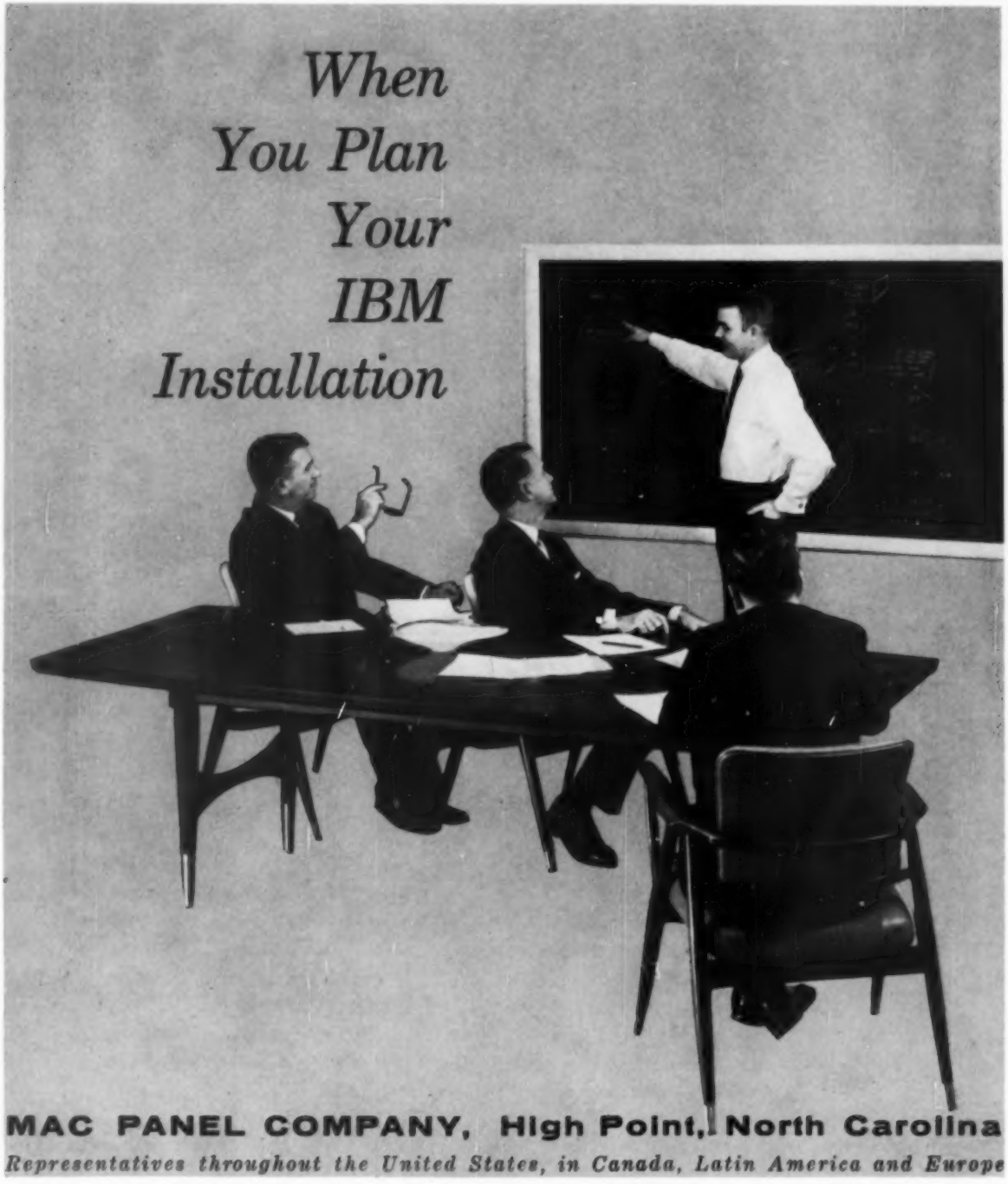

MAC PANEL COMPANY, High Point, North Carolina

Representatives throughout the United States, in Canada, Latin America and Europe

MANAGEMENT *and* BUSINESS AUTOMATION

October, 1960
Vol. 4, No. 4

New ideas, developments, applications, results, and the human impact of business automation in commerce, industry and government.

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By Arnold E. Keller

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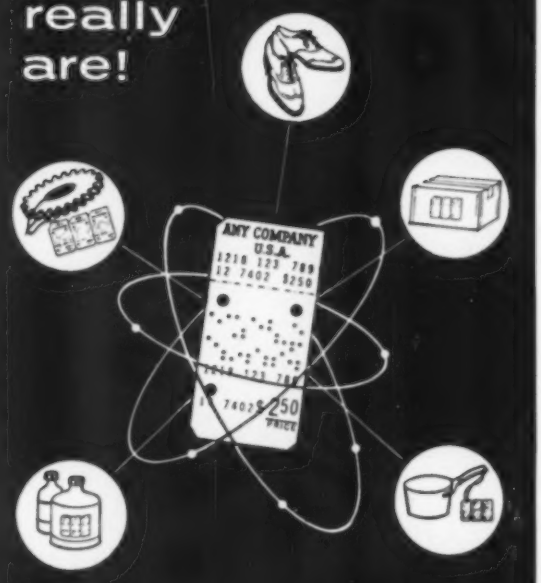

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For More Information Circle Reader Service Card No. 154

Scanning the Issue

After a personal tour of the Rocketdyne operation (where engines for the Atlas, Thor, Jupiter, Saturn and Redstone rockets are developed), MBA's editor felt that readers would be thrilled, as he was, by the immensity and efficiency of the company's huge integrated data processing system. Plants in Canoga Park, Calif., Neosho, Mo., McGregor, Texas, and test facilities at the Propulsion Field Laboratory at Edwards Air Force Base and the parent firm's (North American Aviation) installation at Los Angeles are all linked by teleprocessing. Some 175 units of equipment are involved, including six large-scale computer systems.

The daily volume is staggering. Over 54,000 cards per day and an average of two billion 600 thousand characters are processed by the computers—the equivalent of 4,000 average-sized books. Some 200 miles of magnetic tape is also processed daily, 21 miles of it by microwave. The payoff in cost savings and efficiency is just as great in **Rockets, Budgets and EDP,** page 18.

This month's cover is a Rocketdyne artist's concept of an ion-propelled space vehicle on a Mars reconnaissance flight. The rectangular grill work is radiator cooling surface; outrigger devices are for communication.

The new Memorial Hospital in Long Beach, Calif., has combined electronic achievements in many fields to reflect the space age in which we live. The contributions of Controller Ray Lake and his staff are described in **Business office Sets Fast Pace for "Space-Age" Hospital,** page 24.

Engines for the rockets produced by Rocketdyne are only a part of the "whole bird" to the engineers at the United States Army Rocket and Guided Missile Agency at Redstone Arsenal. These men are responsible for designing and maintaining the missiles, and they need up-to-date and instantaneous documentation to repair, service and fire the "birds." How this is accomplished is the story of **Microfilm at Redstone—the Key to Engineering Communications,** page 30.

Contrary to the general opinion that automation "takes something away" from the personal approach in business today, it has enabled Mechanics, Inc., world's largest distributor of Formica, to give extra service to customers who phone in orders. In **"Automation Adds the Personal Touch to an Order-Taking Routine,"** page 40, a spinning rotary file is the key to a one-step order-inventory system.

The new XeroX 914 Office Copier does not require expensive sensitized paper, or intermediate film negative, or liquid chemicals. It copies directly onto standard office paper (plain or colored), your own letterhead, or card stock. Up to six copies per minute!

There are no exposure adjustments to make with the XeroX 914 Office Copier and, therefore, no waste of materials (the biggest cost item in conventional office copying). Each copy, *every* copy of the original is a *perfect* copy. The last copy is as good as the first.

Copies everything—never misses a color! A letter, invoice, statement, contract—anything written, typed, printed, stamped or drawn can be copied on the new XeroX 914 . . . even pages in a thick bound book. Copies all colors, even reds and blues, with sharp black-on-white fidelity.

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The calculator that allows the smallest margin for operator error will actually prove to be the most accurate.

The Friden SBT requires fewer manual keystrokes, fewer operator decisions than any other calculator on the market.* *In terms of day-to-day output, this makes it the most accurate calculator you can buy.*

For a no-obligation, ten-minute demonstration of "The Thinking Machine of American Business," call your Friden man or write: Friden, Inc., San Leandro, California.

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RANDOM ACCESS

Information bits from the Editor's memory file

Electronics For The Lonely Hearts

There are some who say that marriages are made in heaven; but a young man from Peoria says Univac is more reliable; and for two dollars he'll prove it. Robert Dempsey, 27, is the originator and president of S/R Research Corp., a mechanical marriage-making company that uses punched cards and Univac to scientifically select a mate for a matrimonial candidate.

"Univac," says Mr. Dempsey, takes the chance out of marriage. It can tell a gal more about a guy (and we suppose vice versa) than she could learn about him in months of dating. Anyone sending $2 gets a questionnaire which is filled out and returned to the research corp. The information is transferred to a punched card and then fed to Univac, which sorts out and matches candidates with similar likes and dislikes.

When Univac selects a mate, "additional instructions will follow," Dempsey said. This means another fee, he explains, because the initial fee won't cover the cost of feeding the computer. He estimates a "ten-spot" will cover the additional cost because of mass-market possibilities. No mention was made of the unfortunate person who might have to live with a "key punch error" the rest of his-or-her life.

—•—

Computer To Evaluate Schools

Nashville's George Peabody College for Teachers has programmed an IBM computer to spot the weaknesses of any school system. Schools now evaluate themselves on the basis of national norms, comparing the entire student body's average on standardized achievement tests with the nation's average.

Peabody's computer program, developed by Prof. Curtis Ramsey, compiles and analyzes each student's answer to each question in just two weeks. For example, if a question involving multiplication with zeros involves wide failures, the arithmetic teachers are alerted to a specific failure. Five school systems have been tested on the computer and instructions will soon be available for any school who cares to try the system.

"Without a computer the job would take so long that results would be of historical interest only," according to Ramsey. The project is being financed by a Ford Foundation grant.

Japanese Characters

The most complicated factor in Japanese data processing is the "Katakana," the Japanese alphabet, which has 51 characters—greater than the capacity of type bars and wheels of the printing equipment.

To lick the problem they have developed a code which, in effect, condenses the alphabet for printout purposes.

Another interesting item about Japanese data processing (gleaned on our recent trip to Hawaii) is that machine utilization percentage—90 percent—far surpasses American standards. The punched card has had tremendous reception in Japan in the past decade. In 1950 there were only 14 installations. Today, over 480.

Now RCA Removes More of the Mystery From Data Processing!

First to provide new Plain-English Programming

Gone are the days of complicated "codes" that slowed up programming and increased costs in electronic data processing.

RCA's new COBOL Narrator utilizes universal plain-English language to express your business procedures. The Narrator then causes the computer, working from this statement of procedures, to generate *for itself* the volume of computer instructions required to do the job. The English language material prepared for the data processor is easily read and understood. As a result, direct management supervision of procedures and records now becomes practical and effective.

RCA

COBOL

COmmon Business-Oriented Language

Narrator

COBOL is the result of cooperation by RCA and other manufacturers with large users in industry and government under the leadership of the Department of Defense, which created a simplified English programming language, common to all EDP users. It is one of the most important advances since the advent of automatic programming.

With RCA's COBOL Narrator, employees learn to program in days instead of weeks or months. Programming costs are substantially lowered since time required to get jobs ready for processing is drastically reduced; errors are fewer; changes, corrections, and reprogramming become easier and faster; program debugging on the English language level is quicker and more certain.

RCA's COBOL Narrator is now available for every RCA 501 System and will also be available for RCA 301 and RCA 601 Electronic Data Processing Systems. For further information write: RCA Electronic Data Processing Division, Camden 2, New Jersey.

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RADIO CORPORATION OF AMERICA

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You'll want to visit the "CompuCenter". . . a unique, cooperative display of six of America's leading E. D. P. manufacturers . . . to see and appraise data processing equipment and systems from many major sources . . . all at one time.

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from the

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ANOTHER forward step of extreme importance to both our readers and our advertisers has been taken by MANAGEMENT AND BUSINESS AUTOMATION.

We have employed the Eastman Research Organization, Inc., acknowledged authorities in the field of magazine readership research, for a continuous critical check on the kind of job we are doing for our readers.

This is no perfunctory, superficial check by any means. It consists of personal interviews with our readers by highly trained specialists, consuming an average three-quarters of an hour each, and covering every angle of their reading of MBA.

On each such survey there will be a voluminous report to our editors, telling in detail not only what is read in a specific issue, but how it is read and what benefit or value the readers get out of it . . . plus a vast amount of other detail, including the readers' own comments and criticisms. The report will also include a complete interpretation of the facts uncovered and specific recommendations from experienced and unbiased examiners.

These surveys and reports are *solely* for the guidance of our editors who will study them intently and put them to use. Eastman guards this objective by strictly prohibiting any promotional use of the survey results.

So, the Eastman service has real value for the readers of MBA. It means that we are willing to spend good money, right out of the cash register, to make sure we are doing the best possible job in serving this dynamic field.

If you are selected for an interview, we hope you will be kind enough to take time to give your frank opinion of our performance. The information provided will help all of our readers in the long run.

This is an MBA exclusive, as the Eastman service is available to one publication only in any given field.

Charles W. Gilbert

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MEMO TO: ALL DEPARTMENT HEADS
what is our inventory status on pens and pencils for these repro-process machines?
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FACSIMILE — Have enough FOTORITE BALL PENS
PHOTOCOPY — Getting low on Blak-Prints
THERMOFAX — Need more NO-PRINTS-All Colors
VERIFAX — Have plenty FOTORITE BALL PENS
XEROGRAPHY — Short on RED FOTORITES
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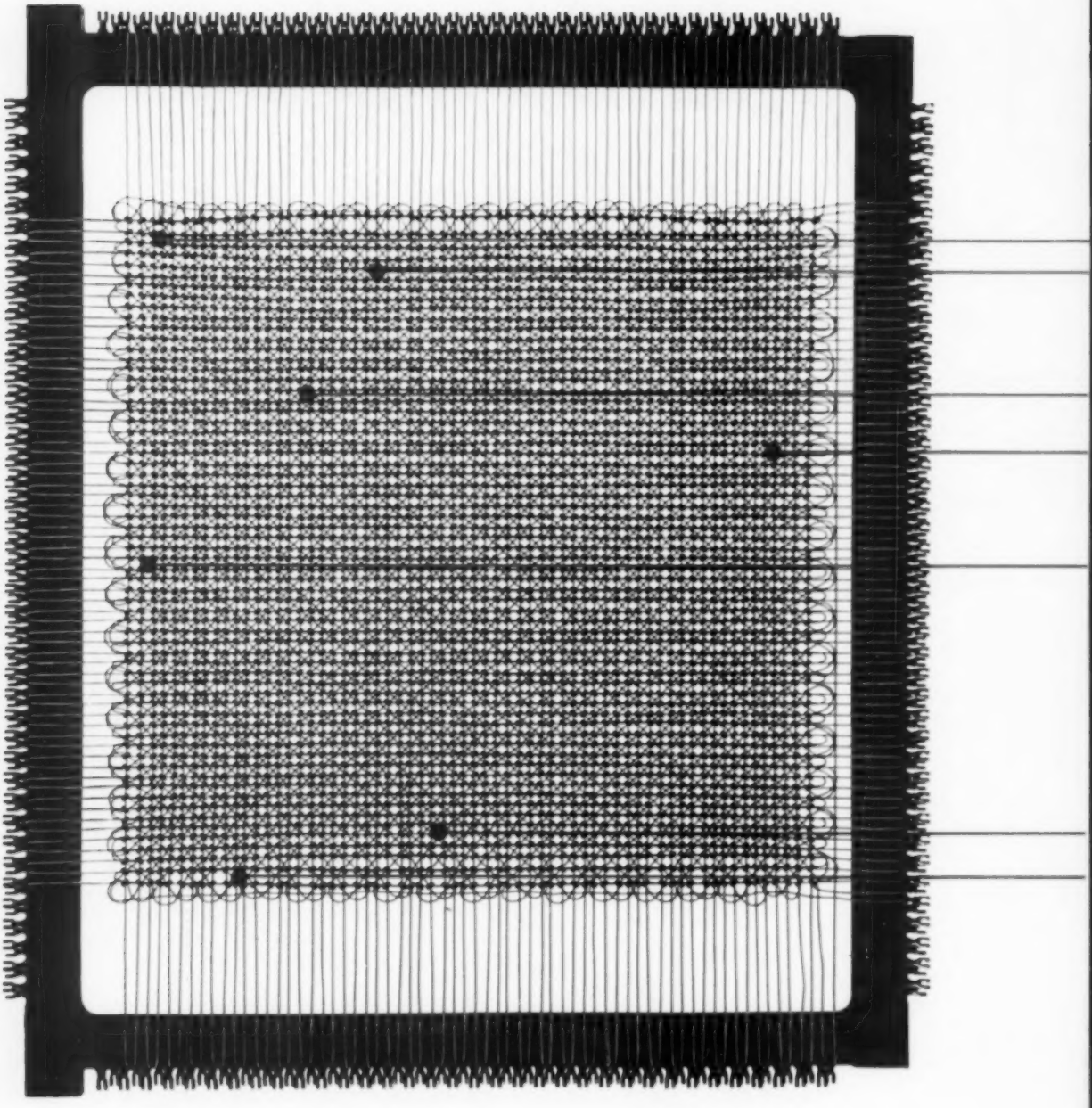
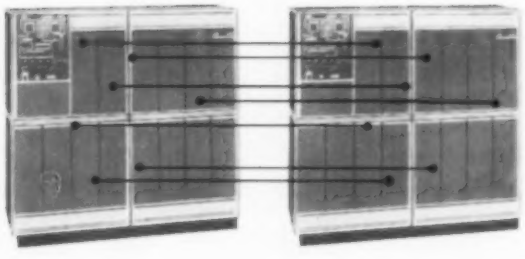
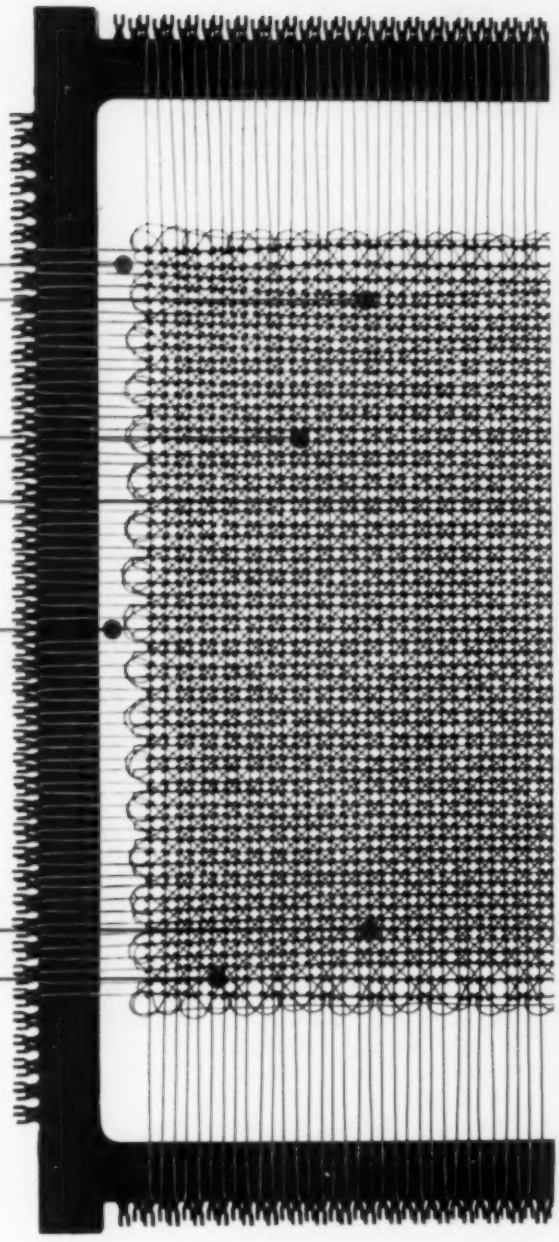




New kind of TELE-PROCESSING system: IBM 1401 systems send and receive information directly, with no intermediate handling of the message.

A new device enables the IBM 1401 data processing system to serve as a low-cost, two-way communications system in addition to its regular processing functions. With the new IBM 1009 data transmission unit, plus related dialing equipment, a 1401 can send data over long-distance or leased communication lines directly from its electronic memory to the memory of another 1401. There's no detour for transferring the data to cards or tape.

NOW IBM 1401 DATA PROCESSING SYSTEMS "TALK" TO EACH OTHER LONG DISTANCE— MEMORY TO MEMORY



This machine-to-machine transmission saves time and effort, improves accuracy. The versatile 1401's card and tape facilities can be used for input and output. The 1401's high-speed printer also may serve as output. The transmission unit can also team up with other sending and receiving equipment developed for IBM TELE-PROCESSING systems.

This expansion of the 1401's capabilities makes possible a fast flow of information into the home office from a wide network of field installations. Business and scientific organizations can make profitable use of this new advance for such applications as accounting, inventory control, engineering, production scheduling and sales communications.

Can an IBM TELE-PROCESSING system help you? Business information is useful only if it can be acted upon. TELE-PROCESSING systems make data available where and when it's needed. With years of data transmission experience, IBM can make your business data more useful. Ask your IBM representative about the advances in TELE-PROCESSING systems and what they can do for you. Data Processing Division, International Business Machines Corporation.

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An MBA News Feature

Los Angeles Is Site of Second OEMI Exhibit

Alfred J. Ball, first vice president of General Fireproofing Co. and president of OEMI.

OVER 60 of the nation's leading manufacturers of business automation equipment and supplies will demonstrate their newest products at the 1960 Business Equipment Exposition, November 1-4, at the new, multi-million dollar Los Angeles Sports Arena.

The exposition, sponsored by the Office Equipment Manufacturers Institute, will occupy more than two acres of exhibit area. The participants represent 90 percent of the country's $41¼ billion-a-year office equipment business.

In conjunction with the OEMI presentation, MANAGEMENT and BUSINESS AUTOMATION will conduct its second annual roundtable conference. This year's discussion will center on "The Effects of Business Automation on American Industry During the Next Decade." Panel participants will be top officials of IBM, Remington Rand, Friden, A. B. Dick, Addressograph-Multigraph, and Booz, Allen & Hamilton. Arnold E. Keller, MBA editor, will moderate the session, and highlights of the discussion will be presented in a later issue of the magazine.

Doors to the exposition will swing open in space-age style; either by an impulse from a nuclear submarine traveling under the North Pole or from a signal bounced back from outer space. Visitors will be greeted by a dramatic display of five revolving, illuminated globes of descending size, depicting the earth and its shrinkage through time, space and motion.

Alfred J. Ball, first vice president of General Fireproofing Co. and president of OEMI, stated that "throughout the exhibit space, the business equipment industry will demonstrate its contribution to this historic progress and the role it expects to play in the future."

More than 1,200 business, government and industry VIP's have been invited to the opening ceremonies, and some 25,000 visitors are expected to attend the four-day show. Attendance is by invitation only.

Mr. Ball emphasized that the exposition is designed not only to demonstrate what is new, but how the products can be used to solve the mounting paperwork, marketing and related industrial problems that are making business so increasingly complex. New applications and uses for established products of the industry will also be demonstrated, he said.

"With equipment made by most of the major manufacturers gathered under one roof, businessmen will have an unusual opportunity to clearly appraise what is available and to judge how it may best be adapted to their immediate and future needs," he added.

The Pacific Coast presentation is the second in a continuing series of major expositions designed by OEMI as a comprehensive demonstration of the latest systems and products of the industry. The inaugural exposition was held in September of last year in Washington, D. C. (See MBA, Nov. '59). According to Mr. Ball, Los Angeles was selected for the 1960 show "because of its importance as the center of commerce and industry in the Western states area." He pointed out that L.A. is the nation's third largest market and the fastest growing metropolitan area.

Corporate exhibitors at the show next month include: Acme Visible Records, Inc.; Addresso-

graph-Multigraph Corp.; American Automatic Typewriter Co.; American Photocopy Equipment Co.; American Telephone and Telegraph Co.; Pacific Telephone and Telegraph Co.; Bankers Box Co.; Bohn Rex-Rotary; Charles Bruning Co.; Inc.; Burroughs Corp.; Business Efficiency Aids, Inc.; Clary Corp.; Columbia Ribbon and Carbon Mfg. Co.

Comptometer Corp.; Copymation, Inc.; Cummins-Chicago Corp.; Davidson Corp.; DeJur-Amsco Corp.; A. B. Dick Co.; Dictaphone Corp.; Diebold, Inc.; Ditto, Inc.; Eastman Kodak Co.; Elliott Addressing Machine Co.; Friden, Inc.; The General Fireproofing Co.; Gestetner, Ltd.; The Globe-Wernicke Co.; Haloid Xerox, Inc.

Hamilton Cosco, Inc.; International Business Machines Corp.; A. Kimball Co.; Labelon Tape Co., Inc.; Macey Co.

Minnesota Mining and Mfg. Co.; Monroe Calculating Machine Co.; Moore Business Forms; The Mosler Safe Co.; The National Cash Register Co.; Ozalid, Division of General Aniline & Film Corp.; Philco Corp.; Pitney-Bowes, Inc.; Recordak Corp.; Remington Rand Univac Division of Sperry Rand Corp.; Royal McBee Corp.; Scriptomatic, Inc.; Shaw-Walker Co.; The Standard Register Co.; Steelcase, Inc.; Stromberg Division, General Time Corp.; Systematics, A Division of General Transistor Corp.

TelAutograph Corp.; Thomas Collators Inc.; Tiffany Stand Co.; Underwood Corp.; Vari-Typer Corp.; Victor Adding Machine Co.; VISIrecord, Inc.; Wassell Organization, Inc.; Webster Electric Co., and Wheeldex & Simpla Products, Inc.

OEMI's Business Equipment Exposition came about in 1958 through the establishment of the Institute's subsidiary exhibits corporation, Office Equipment Manufacturers Exhibits, Inc. Rudolph Lang, veteran of many years in the field of industrial expositions, and author of "Win, Place and Show" a book on effective business expositions, is managing director of exhibits.

OEMI Standardization Projects

ALTHOUGH French may be the international language of diplomacy, office machines and data processing systems have developed so rapidly that a communications barrier could be in store unless equipment made in one country can be easily used and understood in other countries.

The Board of Directors of Office Equipment Manufacturers Institute, recognizing the urgent need for a program to develop national and international logical systems standards for data processing machines—including electronic computers—has given top priority to such a project.

The American standardization project is based upon proposals submitted before a recent American Standards Association conference by the Office Equipment Manufacturers Institute (OEMI). At that time, OEMI was designated as sponsors of two American standards projects: X-3 for data processing machines and X-4 for office machines to be organized under the procedures of the ASA. The American Standards Association, which is composed of over 110 national technical societies and trade associations, serves as the United States member of the ISO.

The American Standards Association does not write standards, but promotes their development by member organizations and others concerned. ASA is also the organization through which standards, accepted by a consensus of all national groups substantially concerned with their scope and provisions, are approved as American Standard. The approved standards resulting from the data processing standards project will be submitted to ISO as the basis on which international standards could be developed.

The first step in getting this project "off the ground" was the appointment in April of Dr. J. W. Barker, former dean of the Columbia University School of Engineering, former president of the American Society of Mechanical Engineers, and, until his recent retirement, chairman of the board of the Research Corporation, as consultant and acting director of the data processing standards project.

Dr. Barker has emphasized that the existence of an American Standard prepared under the auspices of the American Standards Association does not preclude any person from manufacturing, selling, or using products, processes, or procedures not conforming to the standard. The American Standard established under these procedures is completely voluntary and becomes a legal standard only after action by the proper legislative bodies.

E. D. Taylor
Administrative Vice President, OEMI

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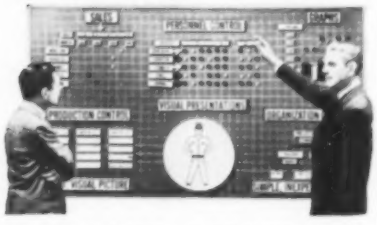

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Letters

Dear Sir:

In your June 1959 issue of MBA you printed an article entitled "A Case of Missing Management." You gave us permission to reprint the article, which was done in the June 1960 issue of the Army Finance Journal. Twenty-five hundred issues were printed, but normal subscription is twenty-four hundred.

Your excellent article was well received and the Finance Center, U. S. Army has requested permission to reprint a small number to circulate within their center, crediting your magazine, of course.

1st Lieut. W. A. Coleman
Managing Editor
Army Finance Journal

Dear Sir:

I am writing a book entitled "Principles of Punched Card Data Processing," and have found an article in the September issue of your magazine that ties in extremely well with principles that I am attempting to stress. The article is "Magnetic Ink Goes to Work," by Arnold E. Keller.

I would like permission to reprint with credit to your magazine.

Robert G. Van Ness
Ontario, California

Dear Sir:

Your editorial in the August issue inspires this letter.

Previously, I read Dr. Parkinson's article in your July issue and his similar essay in the New York Times Magazine. Neither of these provoked any particularly strong reaction in me, for I regard his talents as a satirist as being greatly over-rated. My reaction to the whole thing was that it was superficial and unworthy of a serious reply.

Your editorial places the entire matter in a different light. Implicit in it is a sincere inquiry into the status of the independent consultant in the DP situation.

Enclosed is a copy of my publication called "Plain Talk and Straight Thinking About Consulting Service in the Field of Management Control and Data Processing," with the thought that it is pertinent to the topic under discussion.

I wish you continued success with your fine magazine.

Michael A. C. Hume
Hume Associates

Ed. Note: The booklet Mr. Hume refers to was read with interest. It is indeed a forthright presentation of plain talk and straight thinking on the subject. We assume that Mr. Hume will make copies available to those readers who are interested.

Dear Sir:

I noticed with interest your article "From Punched Card to Printed Page," in the August 1960 MBA. However, the interest stems from the fact that this idea is over five years old in execution and much older in concept. I witnessed one of the first demonstrations of the Justo-writer-Listomatic Camera combination, in September of 1955.

The reason I am writing is not to criticize, but to suggest that many people in my position, who wish to keep up-to-date with the subject of your magazine, would be grateful if the articles such as this one discussed the status of any particular method or procedure to date, rather than present an idea such as this as if it were brand new and entirely unconnected with anything that has been done before.

Robert C. Ferber
Vice President
Zeckendorf Hotels Corp.

Ed. Note: It was not our intention to convey an impression that the article represented a new concept, but rather to illustrate a "payoff" application.

Dear Sir:

Please enter our order for a copy of the special report, "Determining Salaries for Computer Personnel," published in September. I assure you that a book such as this is much needed and long overdue. Please make sure that we receive one of the first copies off the press.

B. F. Feeley
Installation and Merchandising Coordinator
Radio Corporation of America

Dear Sir:

We have read, with great interest, the survey conducted to collect information on "Computer Depart-

ment Salaries" in the June issue of MBA.

In the not to distant future, our division will have a 7090 IBM computer, so you can easily realize our vital interest in the results of this survey, especially the list of job descriptions which were included.

We feel that these job descriptions would be an excellent source of information to formulate a working organization.

We would be very grateful if you could give us any other information that you feel would be helpful to us in attempting to initiate such an organization.

Charles H. Bunty
Methods Analyst
Steam Division
Westinghouse Electric Corp.

Dear Sir:

This is a special word of appreciation for the most interesting and stimulating article on optical scanning which appears in your September issue. Your use of an article by the writer and your references to NDP and its products were most gratifying. There is no doubt that such well informed articles as yours describing new data processing techniques, serve to stimulate both manufacturers and users of data processing equipment.

Herman L. Philipson, Jr.
President
National Data Processing Corp.

Dear Sir:

I have read, with interest, your article on "Optical Scanning—An Unlimited Horizon" which appears in the September 1960 issue of MBA.

I am the director of publications for the Interpreter which is a monthly magazine published by the Insurance Accounting and Statistical Association. This publication goes to about 750 insurance companies with a circulation of about 2,500. In this magazine we try to keep our members up to date on new methods and new systems that are being perfected that could be adapted to the insurance industry.

I would like very much for you to give me permission to reprint your article on Optical Scanning in one of our coming issues.

Bryson Clarke
Insurance Accounting and Statistical Association

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Data Processing

Advanced management concepts plus the nation's largest integrated data processing system help to cut rocket engine production costs.

Rockets, Budgets and EDP

By Arnold E. Keller

A POWER-PACKED SYSTEM of integrated data processing is helping to make dramatic cuts in the cost of our country's big rocket engines. Installed at Rocketdyne, a division of North American Aviation, Inc. and one of America's pioneers in missile and space propulsion, the system is playing an integral role in almost every phase of the company's operations—from controlling budgets to plotting rocket trajectories.

Combining conventional punched card equipment with microwave and the "world's largest" network of commercial computers, Rocketdyne's advanced system has been influential in reducing the cost of Thor and Atlas engines by 37 percent —or an estimated $27 million.

One example is the program called "Allocations For Budgetary Control." Here a high speed computer and a cathode ray tube are producing monthly graphs on 200 projects to inform Rocketdyne management at a glance where costs are out of step with the budget. In another program, identified as "Mechanized Production Control," the production status of thousands of parts required in Saturn, Atlas and Thor engines is stored in a computer, with any of the information available in minutes, on demand by any of the company's locations. Estimated savings of this program are $50,000 a month.

Rocketdyne's main offices and plant, housing two high-speed IBM 709 computers, a Ramac 305 and a huge complement of conventional equipment, are located at Canoga Park, Calif. Also used by the firm are two 709's and two 705 computers installed at North American's Los Angeles division, located near the International Airport, 39 miles away.

The computers, linked together into a powerful network, are, in effect, able to "talk" to each other via microwaves and telephone wires at the rate of 75,000 words per minute. This is accomplished by IBM's Tele-processing data system, developed in cooperation with the Pacific Telephone and Telegraph Co. and Collins Radio Co. Tied into the system by cryptographic teletypewriter circuits are Rocketdyne plants in McGregor, Texas and Neosho, Mo. The McGregor plant designs, assembles and tests solid propellant rocket motors, while at Neosho, liquid propellant engines are produced and tested.

The present computing needs for these two plants demand speed and accuracy, rather than the processing of great volumes of data. Operating at about 70 words a minute, the cryptographic teletypewriter circuits do an excellent job of placing Rocketdyne's combined computing capacities at the disposal of Neosho and McGregor engineers. Raw data from an engine test sample at Neosho is transmitted to Canoga Park, reduced and transmitted back in one hour and 15 minutes on five-channel paper tape. As a security precaution, a "scrambler" encodes the data at the transmitting end and an "unscrambler" automatically decodes it at the receiving end.

Scientific problems can be solved and engine test

Magnetic tape plays a stellar role in Rocketdyne's "complete" system of integrated data processing.

data reduced faster, more completely and economically under this system than would be possible through installation of smaller EDP units at these remote facilities.

"We depend heavily on our computers for basic calculations in the design of new engines," stresses S. K. Hoffman, President of Rocketdyne, "and by reducing our test results on the computers we can give our test and development engineers quick answers."

Too many ground rules

Engineers also can turn to the computers for help when an engine develops trouble during the test. The machines pick out all instances where similar troubles occurred in other test firings and send out over the wires a book of information providing an immediate guide to the trouble and how it occurred. In many instances this service allows the engineers to correct troubles without removing the engines from the testing stands.

The philosophy of pioneering—but with always a logical step at a time—is typical not only of Rocketdyne's tele-processing, but of the firm's entire approach to integrated data processing.

Despite the availability of many large scale computers the company still uses basic punched card equipment as the first step in automating any system. And, the firm is constantly aiming toward truly integrated processing which will cover all aspects of its operations — production control, accounting, purchasing, engineering and others. Though admittedly five to ten years away, the company moves steadily toward the target, a step at a time.

Says Controller, Fred J. Knepper, "We hope to eventually attain a system which has everything emanating from a single document. This would eliminate many of the problems common to large corporations today." Knepper believes that American business has too many sets of ground rules and too many people doing the same job in a slightly different way with slightly different interpretations.

He points out that often before management can attack a problem, varying "facts," figures and interpretations must be reconciled, complicating and delaying the solution. "Complete integration, by its very nature, will standardize all this," he adds, "and electronic computing will supply enough detail so management will be able to resolve the entire problem, satisfying everyone's needs to a degree impossible now."

Rocketdyne has taken many steps to make measurable progess in this direction. An excellent example is the firm's MPC system — Mechanized Production Control.

A production order carrying a complete plan of manufacture is prepared—in punched card form

R. C. W. Guy, left, executive vice president; J. P. McNamara, vice president, and F. J. Knepper, right, controller, discuss budget reports prepared automatically on computer.

Using IBM Teleprocessing, budget information in magnetic tape-recorded form is microwaved to Los Angeles for immediate computer processing. Results are transmitted back the same day in similar fashion.

—for each part involved in production efforts. The order specifies the quantity, supplier, manufacturing instructions, production start time and schedule. The cards are then fed to a Ramac 305 computer, heart of the MPC system. The planned routings and schedules of all orders released are maintained on the Ramac "disk" master record. Progress of the order through the fabrication cycle is reflected on the master record by information fed to the Ramac from control stations throughout the assembly lines.

Engineers should engineer

Output of the system includes pre-production scheduling, purchased parts and assembly requirements, material withdrawal requisitions and shop-order planning tickets.

Each day a recap is printed of all orders that have changed status within the past 24 hours. The computer also puts out a weekly analysis of all work-in-progress. At any hour of the day it will answer requests for the production status of any part in the plant, printing out the data on a "R.F.I." Report—Request for Information. More than 500 of these requests are made every day, and though the computer carries data on some 20,000 work orders, it takes just seconds (6/10ths of a second to be exact) to answer each inquiry. Even from the distant Neosho plant the computer's "memory" can be tapped in a matter of minutes.

According to Ross Clark, Canoga Plant manager, the MPC system has resulted in tighter, more accurate and timely control which has cut production costs by 15 percent, reduced lead times, and considerably increased the plant's over-all efficiency.

Another of the imaginative new uses of high-speed data processing at Rocketdyne is the "Model Parts List," which is closely related to the production control program. MPL is the result of a campaign to give engineers more time for engineering and it has resulted in the savings of thousands of dollars, plus vastly simplifying the production of rocket engines.

The Model Parts List is a master list of every item needed to build a specific rocket engine, sometimes totalling as many as 10,000 parts.

As engineers complete instruction drawings for assembly and installation, trained specialists prepare lists of the items needed for the job. For example, an engine's fuel pump may need an alumi-

Payroll for Rocketdyne's 12,500 employes is printed off-line from magnetic tape. One of three high-speed 500-lines-per-minute printers is shown at left during payroll run.

num body cast by an outside company, five seals of a certain size and two of another, sets of metal and plastic rings, and a variety of nuts and bolts.

In addition to an identification number and a description of the part, the cards show where the part fits and how many are needed for each engine, instructions for the part to be manufactured by Rocketdyne or purchased on the outside, a breakdown code if the unit is an assembly of parts, and a Federal Manufacturer's Code Number. Items on the list are recorded on punched cards and filed in alphabetical and numerical order.

A jump on the job

The use of specialists rather than engineers to compile the listings has saved the company a reported $100,000 during the first 18 months of the program. Previously, engineers tediously listed the parts on their drawings; now the listings are made separately and faster, and the data is then fed to a master file maintained by an IBM 709 computer.

Changes in any of the information are immediately recorded in the master file and distributed on daily revision sheets. Every other week the computer processes the complete file and prints out an updated Model Parts List for distribution to all interested personnel. The master file serves other purposes as well. If, for example, a standard bolt fails during an Atlas engine test, the computer can inform engineers immediately as to each model in the plant that is using the suspect bolt. These bolts can be tracked down quickly and checked to avoid further failures.

Through MPL, new engines designed to give the Atlas more range were placed in production literally hours after the order was issued by the Air Force. The computer system selected every item that was identical on the new engine to those used on earlier models and, a short time later, new orders were being written in the production shops, and contracts were being signed with suppliers.

Company officials estimate that MPL gives the production shops and buyers at least a three-week jump on the job over the previous system, plus eliminating errors that occurred in the old system because of human inconsistencies.

Rocketdyne has devised several other impressive systems, both scientific and commercial, that play a large part in maintaining the firm's leadership in the rocket and missile field. Outstanding among these is ABC—Allocations for Budgetary Control—a program designed as a management tool for senior executives and middle management.

ABC is a comprehensive integration of cost factors affecting a given program: money spent through the prior month, commitments outstanding, adjustments in the estimated annual over-

Continued on Page 42

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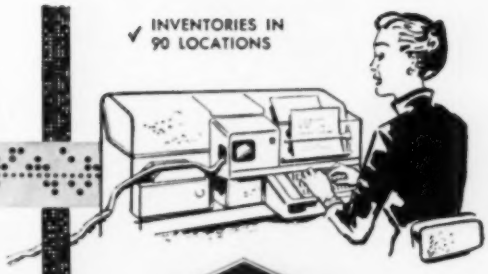

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For More Information Circle Reader Service Card No. 164

The patient's information plate is created in the admission office on a Dashew embosser. The top part of the admission form is then duplicated on cards which are distributed to various offices.

Business Office Sets Fast Pace For 'Space-Age' Hospital

FROM the moment the cry of a newborn baby electronically opened the doors of the spanking new Memorial Hospital in Long Beach, Calif., the 400-bed medical center has laid fair claim to its new title, "space-age hospital."

With facilities ranging from a helicopter port for emergency cases to a central dictating system for doctors, the $10,800,000 medical facility makes use of a score of electronic devices geared to speed hospital routines and make life safer for the patient and easier for the staff.

The business office, keeping pace with the technical achievements, has contributed its share by simplifying procedures. A staff-designed accounting system provides one-step forms that service all departments, serve as records, fill orders and control inventory and billing. Controller Ray Lake and his associates devised new admitting, laboratory, nursing and billing forms that virtually eliminate the need for repetitive writing on the part of the nursing or laboratory staff. An embossed plastic plate designed by Dashew Business Machines Co. is the key to a simplified system of filling out forms used to order services and supplies. The plate is also used to imprint the paper insert for the patient's identification band, for the reference panels at the nursing station, for patient directories and in the PBX telephone office panel.

Automation has been utilized in the form of a pneumatic tube system which carries forms and messages throughout the seven and one-half acres of corridors and rooms, in a specially-designed electronic telephone metering device, in high-speed posting and accounting machines, and in the telephone-type remote dictating equipment for the

At the nursing station, the plastic ID plate is used to order supplies, services and head up charts.

Charge slips, requisitions and messages are sent by pneumatic tubes throughout the hospital.

doctors' use. Many nurses carry transistor radio receivers tuned to an electronic nurse call system, and closed circuit television guards the entrances and exits of the building. In the future, by using conduits already installed, closed circuit TV will bring full pictures of surgery to students sitting in their classrooms.

Controller Lake also played an important role in the design and development of a Patient Control Panel which is located at each bedside. The unit, built by General Telephone, is the ultimate in patient convenience. It contains a dial telephone for making direct outside calls, an electric alarm clock with timing unit, remote controls and a pillow speaker for TV, three pre-tuned FM radio channels and a continuous music channel. The unit also serves as a special intercommunication system which puts the patient in direct contact with the nursing station at the flick of a switch.

Service and a bill

The central dictating system has been designed for the convenience of doctors. No matter where they may be in the hospital, they can record clinical information by picking up a telephone-type dictating unit. The equipment installed is the SoundScriber Communicator line. The main system has five central Communicator recorders and 16 multi-selector push-button dictating phones located strategically throughout the hospital. There are two stations on each floor, both in a booth near the nurses's area. Doctors who wish to record information concerning patients use these units.

Specially-trained medical transcribers in the medical records library transcribe the dictation daily for the doctor's signature, making his statements a matter of the permanent patient's record. There are two other systems in operation, one in radiology and one in pathology. Radiology has three standard Communicator recorders and two executive secretary transcribers to handle the X-ray dictation. Pathology has two Communicator recorders and two transcribers to handle the laboratory dictation.

The major role of the business department in Memorial Hospital, or any hospital, is serving the patient from entry to departure—and furnishing a correct and itemized bill for these services.

The patient's first contact is usually in the admitting office. Here he is questioned about his medical history, insurance, credit, and other information useful to the hospital and the doctor. Speed at this point is essential to the welfare of the patient, and at Memorial, the business office has attempted to cover all the admitting steps

Continued on Page 28

"The Burroughs 220 Computer is a Potent Tool in Advancing Our Technology."

Dr. Charles D. Alstad, *Acting Director, Computations Research Laboratory,* The Dow Chemical Company

Why do it? There are many common denominators between the global Dow of 1960 and the infant Dow of 1897. Perhaps the most important one is a business philosophy stated by founder Herbert Henry Dow. He put it this simply: "If you can't do a thing better than it's already being done, why do it?"

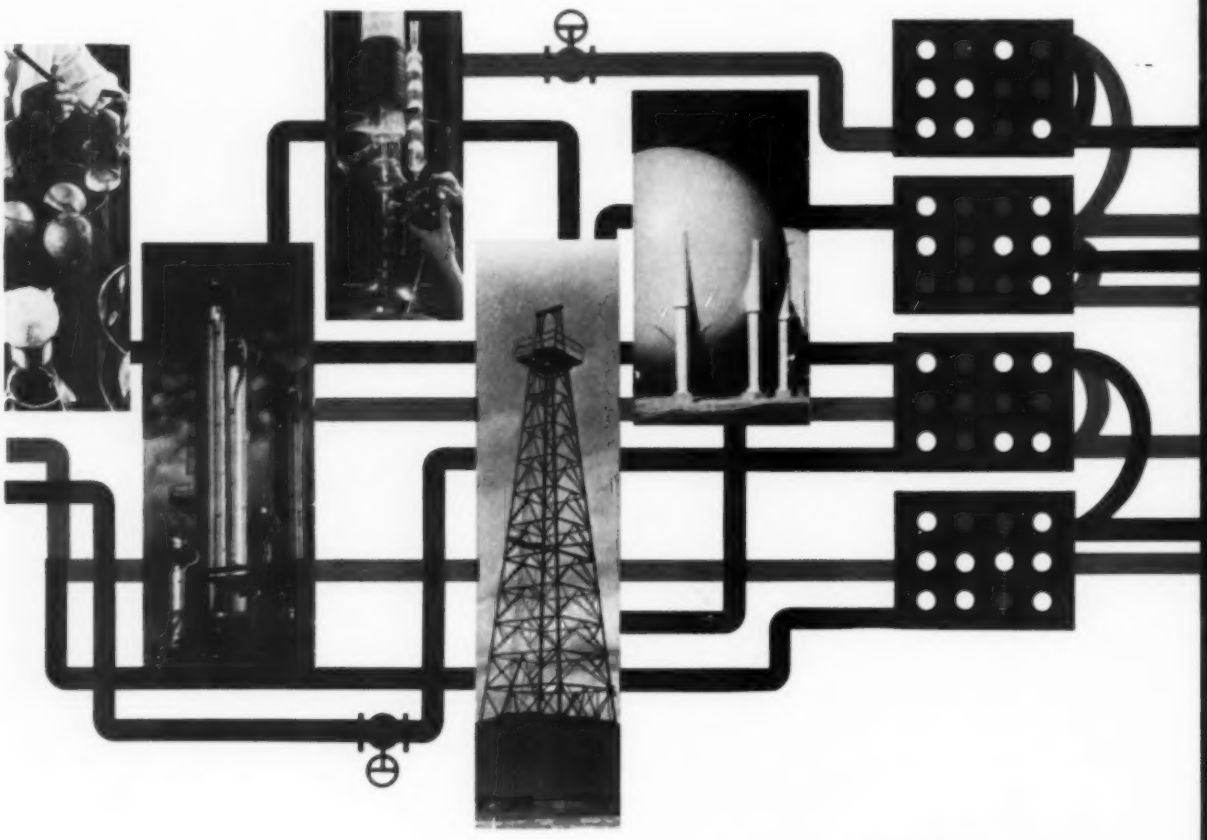
Under this pervading philosophy, Dow places heavy emphasis on new product research and operations research. And to help push advances in these areas farther and faster at less cost, Dow uses a Burroughs 220 Computer System.

THE BURROUGHS 220 AT DOW

This 220 system consists of the data processor with 5,000-word core storage, two supervisory printers, photoreader, two paper tape punches, three magnetic tape storage units, and a Cardatron sub-system for controlling punched card input and output. Selected for its greater capacity and speed, the 220 is one of two Burroughs Computers at Dow. The other: a Burroughs 205 Computer at Dow's Freeport, Texas, operation.

The 220 computer is at work in Dow's Computations Research Laboratory in Midland, Michigan, headquarters for the firm. As Acting Director Dr. Charles D. Alstad puts it, "Our use of the 220 is in scientific and engineering applications, where it is an important adjunct to all the scientific talents available at Dow."

Super screener. For example, Dow uses the computer as a screening tool in the development of higher energy solid rocket fuels under its contract with the Advanced Research Projects Agency. In pursuit of project goals, Dow chemists can envision many fuel combinations. But they can't, of course, subject each combination to exhaustive laboratory tests. Through the Burroughs 220, Dow gets all data necessary for preliminary evaluation of a fuel and gets it in anywhere from two minutes to a half hour. In this way, Dow scientists can select only the most promising combinations for laboratory evaluation, development and testing.



Turbine tamer. In another application, Dow uses the 220 in calculating turbine efficiency tests. The calculations, which were formerly performed by hand, took at least two weeks but now require less than five minutes on the computer.

Designing for profit. Plant design is another function of the 220. In today's hotly competitive chemical industry, it's essential to keep the cost per pound of product minimized. Consequently, a plant must be carefully designed for a specified capacity, minimum capital investment, and efficient operation. The computer is a useful tool in striving for these objectives.

Care and feeding of production. In an extension of plant design, Dow uses the 220 for plant simulation, using either a derived statistical model or a theoretical model to study an existing plant. The information obtained is valuable to Dow in maintaining quality of product and efficient use of facilities.

Dr. Charles D. Alstad

Masterminding molecules. The 220 at Dow is busy in pure research, too, where it is helping to advance the frontiers of science. For instance, Dow is investigating the bonding forces and links between the atoms in a molecule. And the Burroughs 220 performs the Urey-Bradley Force Constants Calculations that are required. These studies will supply the knowledge which will allow Dow scientists to make predictions on how a given chemical will behave in a reaction.

Long and short of it. There are many other aspects of the 220's work at Dow, such as its evaluation of pilot plant projects, information retrieval and other routine mathematical calculations. "Fundamentally," says Dr. Alstad, "our Burroughs 220 computer is a potent tool in advancing our technology. From the range of applications, you can get an idea of the computer's value to us. And you can see why we are most enthusiastic about the results and the potential of the digital computer in research and engineering applications."

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Computer Operator Ray L. Haeusler at console of 220

The hundreds of other scientific and commercial users of Burroughs computers are getting equally impressive results, too. One reason is the capability of the equipment in Burroughs complete data processing line. Another reason is that the equipment is backed by a coast-to-coast team of computer specialists, who are primed to show you how thoroughly and efficiently they can help you. For information, write Burroughs Corporation, Detroit 32, Michigan.

Burroughs Corporation

"NEW DIMENSIONS / in electronics and data processing systems"

For More Information Circle Reader Service Card No. 165

'Space-Age' Hospital

Continued from page 25

Telephone, intercom, radio and TV are all at the patient's fingertips thanks to this bedside unit.

Supplies are sent to the floor areas by this electrically controlled dumb waiter. Inventory forms accompany the supplies and are imprinted with the patient's plate when the items are used.

with a minimum of effort for everyone concerned.

Mr. Lake and Richard Drant, systems organizer for Memorial Hospital, as well as other members of the business staff worked closely on the preparation of individual forms which would meet the requirements of the hospitalized patient, the doctors and the business office. To operate the hospital, there are some 250 forms and documents in existence. There are, however, a certain number of these which are common to all patients. These major forms play the most important role in hospital procedures.

Eight Parts for Admission

The admission form is an eight-part unit, with three permanent copies created for the medical record, the patient, and the doctor. At the time this information is posted by typewriter, a Ditto spirit duplicator master is created, and simultaneously, a ledger card and three statement copies are produced. This entire unit is put together in such a way that the copies can be folded back to back, inside out, so writing won't transfer while the form is used during hospitalization. The record copies fold back for final comments at the time of the patient's release.

The Ditto master captures all the information recorded on the upper 8 by 5-inch section of the admission form. While the patient is going to his floor, the office runs off 3 by 5-inch information cards. These are distributed to the record room, cashier's office, business office, information desk, clinic, dietary, kitchen, volunteer office and the hospital chaplain. The information on these cards includes the patient's name, address, admitting physician, sex, race, faith, nearest relative, room number, phone number and other general facts.

However, the patient's privacy is respected during the creation and distribution of the slips and cards through the use of NCR carbonless paper and design masking on the master. Such information as the personal financial report, for example, is not available on the portion of the form which goes to the information clerk or the kitchen. The statement copies, likewise, contain only the name and address of the patient while the ledger card has all of the necessary financial data.

The next step in the admission procedure is the creation of an embossed plastic plate which will be used for all subsequent patient identification. The identification plate is imprinted on the Dashew Datatyper, Model 400 from information obtained from the admission form. This includes the patient's name, age, attending physician, hospital identification number and room number.

The first use for the plate is to imprint four identification strips, using the Dashew Datawriter Model 19-5. One strip is put into the patient's plastic identification band, two go to the patient's floor where one is inserted in the "quick reference" panel and the other in the director of pa-

All charge slips for lab and supply services are posted to the patient's ledger card each night to keep bills up-to-date.

tients, and the fourth is inserted in the PBX telephone office panel directory.

The plate is then used to imprint forms used for laboratory services ordered by the doctor upon admission. These five-part, snap-out lab forms, a product of Uarco, Inc., have also been specially designed to maintain the speed and efficiency of the hospital's procedures. One part is a pre-gummed label which is fitted into the area where the patient's information is imprinted. This gives the lab technician a label to attach to a specimen bottle or other container without any need for transferring the information by writing. The first copy of the form is pre-printed with the names of most of the standard tests as well as special code numbers and individual charges. When a test is made, the lab technician merely checks off the name. This copy goes to the business office, and it makes it a simple matter to post the test and charge to the ledger card and statements.

The plate on the patient's floor

Another part of the form goes to the patient's portfolio (chart), one part remains in the laboratory and the fourth copy goes to the doctor.

When the initial lab forms are imprinted, the plate is sent to the patient's floor. Here it will be used for ordering service and supplies. One of the first items created is the patient's TPR (temperature-pulse-respiration) form, followed by nurses' notes, doctors' notes, physical examination, property list and progress record. All of these forms are quickly headed up with the correct patient information as are any lab or other services ordered from the floor. The plate is also used to imprint 8 by 5-inch double cards which are kept at the nurses' station in a posting tray.

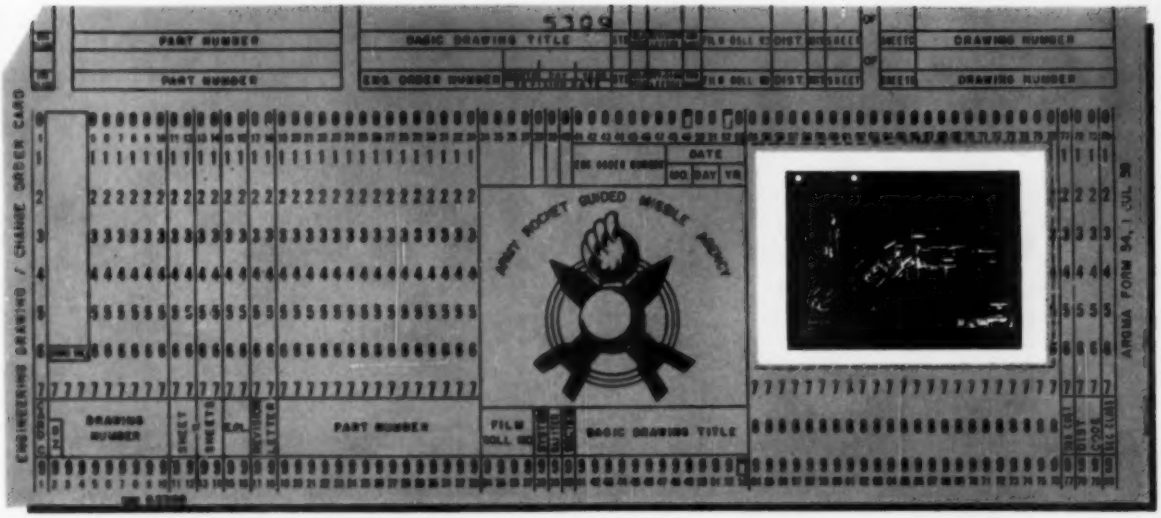
The plastic plates play a dual role in the ordering of central sterile supplies. Blank charge forms are first imprinted with plates describing the item of service or supply and its price. When the item is prepared, the pre-printed, three-part form accompanies it to the nursing floor. When the item is drawn from floor stock, the patient's plate is used to imprint his name on the form. The top copy is sent to the business office, one is returned to central supply for inventory control and one is retained by the nursing department. Like all charge slips, these are dispatched to the business office via the Lamson Corp. electronic tube system.

As the various charge slips, lab test slips and other service slips flow into the business office, they are filed in front of the patient ledger cards in open posting trays. Each night one employe posts all patient accounts on an NCR class 2000 posting machine. Daily hospital care charges are posted to the accounts from rates set forth on an index tab used to maintain the ledgers.

Posting of the charge slips is by a coded alpha-numeric system explained on the back of each statement. At this time the ledger for the permanent hospital record, two statements for the insur-

Continued on Page 64

ARGMA engineers can quickly scan a blow-up of any microfilmed drawing and, in addition, can produce an 18 by 24-inch paper copy within 10 seconds. Equipment is Filmac 200 Microfilm Reader Printer developed by Minnesota Mining and Manufacturing.



Over a million engineering drawings are mounted in aperture cards.

Microfilm at Redstone—the Key To Engineering Communications

INSTANT MECHANICAL RETRIEVAL from a file of over two million drawings and related documents has brought the speed and accuracy of automation to engineering communications at the United States Army Rocket and Guided Missile Agency (ARGMA), headquartered at Redstone Arsenal, Huntsville, Ala.

The agency's engineering documents section controls an active file of some 850,000 drawings plus a historic file in excess of 1½ million items—all microfilmed and mounted in aperture cards. Information taken from the huge file can be printed out automatically in card-to-paper or card-to-card form quickly and conveniently. Strategic placement of viewers and reader-printers throughout the Documentation Service unit and the engineering section enables agency personnel to view enlarged microfilm drawings, and, within a matter of seconds, obtain paper copies for further reference.

One of the great advantages gained under the microfilm system is that the aperture cards, once verified, contain "forever-accurate" engineering drawing combinations with all pertinent information, ready to be sorted into any desired sequence, reproduced, filed and retrieved by high speed electrical accounting machines. The saving of time is enormous. Equally important is the space saving (it is now possible to store 100,000 drawings in only four square feet of floor space) and the saving in personnel (ARGMA has reduced its clerical filing effort by more than 40 percent since mechanization). In addition to the savings of time, space and personnel, ARGMA has found that there are substantial dollar savings.

Once microfilm was selected for the storage of engineering documents, it was necessary to solve the problem of supplying engineering and procurement personnel with copies of any documents on an instantly-available basis. Three methods of printing out any or all engineering information were set up:

One is a card-to-paper system for those needing paper copies in quantity. ARGMA has installed

A Filmsort card-to-card printer, specifically adapted to ARGMA requirements at Redstone Arsenal, is geared to produce duplicate aperture card printing for mass distribution at speeds up to 600 cards per minute.

an automatic, continuous electrostatic printer (developed and produced by Haloid Xerox, Inc.) which prints the microfilmed image from aperture cards onto either plan bond paper or reproducible paper at the rate of 20 feet of finished drawings per minute. The machine is equipped with an automatic cutter which clips off each drawing as it leaves the machine, and it is capable of printing from one to 400 copies from a single card. Savings in reproduction costs realized in the first month of use were more than $53,000, and time savings for reproducing any individual drawings has ranged as high as 10 days.

In the beginning

In another card-to-paper system, an automatic Thermo-Fax microfilm viewing machine (the "Filmac 200" reader-printer by Minnesota Mining and Manufacturing Co.) has been procured in sufficient number to allow for strategically placing them throughout the Engineering department. In this way, the engineers have the opportunity of rapidly viewing any one of the drawings in the file, and, if necessary, reproducing an 18 by 24-inch copy of the drawing desired from the aperture card in 10 seconds.

The third method is card-to-card printout. Since virtually all of the engineering filing and reproduction of ARGMA is on aperture cards, the agency has two types of equipment designed to print from original cards to duplicards. One is a small, manually-fed machine which is used for filling small requests for drawings in film form. The other is an automatic Filmsort card-to-card printer which will reproduce an average of 600 film cards per hour automatically. All requests for reproduction are answered by utilizing duplicates reproduced by these machines, enabling the master file to remain up-to-date at all times.

The aperture card system had its beginning in the early 1950's when a large number of missiles having different objectives were added to the Army arsenal during the rapid expansion of the missile program. It was recognized that the then-current method of maintaining vital engineering documentation necessary to repairing, maintain-

Continued on Page 34

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Microfilm at Redstone

Continued from Page 32

ing and deployment of weapons would be outstripped. ARGMA Engineering Documentation Center was responsible for receiving, checking, recording, storing, reproducing and distributing documentation and relay data for each component of every missile system.

Operating units required proper and up-to-date documentation in order to repair, service and fire the missiles. Engineers had to constantly refer to and check drawings as an aid to the number of missile weapons systems designed. The procurement division of ARGMA needed quick access to diagrams, drawings and specifications in order to obtain needed repair and replacement parts from scores of manufacturers.

The center started in 1950 with a manual operation, using original drawings and blueprints. By 1954, it was apparent that some faster, less expensive system of controlling, processing and distributing engineering data was urgently needed. Following two years of intensive feasibility studies of mechanized processing, it was decided that a combination of microfilm aperture cards and punched card equipment would solve many of the problems.

Uninterrupted conversion

During the early months of 1957, two microfilm cameras were put into operation along with a minimal number of IBM machines, and ARGMA began converting its engineering documents from a manual to a mechanical filing and retrieval system. It was necessary to maintain a complete, uninterrupted manual system while the conversion took place.

At the beginning of the new system, all engineering drawings were received in "hard copy" form from the scores of suppliers and contractors. The drawings were checked for accuracy and legibility, microfilmed on 35mm microfilm and sent to a film processing contractor for developing and duplicating. After this they were returned to the Agency at Redstone.

A punched card containing all pertinent information necessary to mechanically control the drawings was keypunched and key-verified directly from the roll of microfilm with the aid of a viewer. The card was used to reproduce as many duplicate decks as necessary and then, through the use of a semi-automatic mounter, the roll film was cut and mounted into the card. Simultaneously, the operator of the mounter compared the drawing number shown on the film against the number punched in the card.

Operators can verify a previously punched EAM card and mount corresponding microfilm at an average of 3,000 per day, using Filmsort semi-automatic mounter.

The first microfilmed engineering drawing of ARGMA's Mechanized Data Processing System was mounted into an EAM aperture card in October, 1957. Since that date, approximately seven million microfilmed documents have been completely processed and are in working files of the arsenal or have been furnished to using agencies.

A valuable policy

Although the system continues to operate on the same basic principals, today, because of the increased volume, prime contractors and suppliers submit their engineering data directly on microfilm, already mounted in aperture cards. ARGMA, however, will accept and process hard copy engineering documents from contractors whose work load does not justify the installation of filming, card punching and mounting equipment and whose contracts do not permit this kind of operation.

The policy of specifying that certain prime contractors supply engineering documentation in microfilm mounted in aperture cards has proved valuable from the agency's point of view. Personnel and equipment requirements have been reduced, and efficiency has been increased. The policy eased demands on the agency's camera equipment and at the same time saved an appreciable amount in trans-shipping costs to the agency's 15 distribution points.

Continued on Page 44

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An MBA News Feature

Spotlight Shines On CompuCenter At National Business Show

The Bendix G-15 Computer and accessories.

ELECTRONIC data processing will dominate the 1960 National Business Show, to be held in the New York Coliseum, October 24-28.

To provide the "microscopic examination of EDP needed by America's business executives," the show will feature a unique cooperative display of electronic computers in action. An 8,000-square-foot exhibit called the "CompuCenter" will be the main highlight of the event. Companies and equipment on exhibit include the Bendix Computer Division, with the G-15 general purpose digital computer and accessory equipment; Control Data Corp., showing the Model 160 computer and the Model 180 data collector; Monroe Calculating Machine Co., featuring its line of Monrobot computers; the Philco Corp. and its S-2000 general purpose EDP system; Radio Corp. of America, exhibiting the RCA 501 system, and Remington Rand Corp., showing the Univac 90 in action.

In addition to "live" equipment demonstrations, the Business Show is offering an innovation—a five-day series of conference sessions on the various aspects and effects of electronic data processing. Representatives of the companies cooperating in the CompuCenter will address the conference at individual sessions, explaining the details of their specific equipment. There will also be a series of computer users sessions where each of the systems will be described in application terms.

R. M. Gleason, chairman of the seminar advisory committee of the Office Executives Association will open the five-day meeting. In addition to straight equipment and application discussions, there will be special introductory talks by representatives of management consulting firms, and there are several sessions planned to cover im portant aspects of electronic data processing developments. On Tuesday afternoon, October 25, R. L. Harrell, executive vice president of the Farrington Mfg. Co. will tell of optical scanning and new applications for this equipment. On Wednesday afternoon, Albert Summers, director of Business Analysis, National Industrial Conference Board, will discuss "Our Economic Future." On Thursday, Frank B. Gardner, partner in Arthur Andersen & Co., will present the picture of "Lease or Buy" for the businessmen at the session.

Admission to the CompuCenter will be by special ticket only, while the conference package is available to executives for $30 for the five days or at $7.50 per day. Philco equipment will be discussed on Monday, RCA equipmnet will be featured on Tuesday, Bendix has the spotlight on Wednesday, Univac is scheduled for Thursday, and Control Data Corp. and Monroe equipment will be highlighted on Friday.

In cooperation with the CompuCenter project, several manufacturers such as Art Metal, Inc., Eastman Kodak Co., Nord Photocopy & Business Equipment Corp. and Underwood Corp. are providing special equipment and services.

General chairman of the conference is James F. Foley of Remington Rand, vice president for research and study of the Office Executives Association of New York, sponsors of the National Business Show.

The show, this year, will also feature exhibits by a large number of office equipment manufacturers and service organizations.

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on clerical and managerial compensation plans

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6. Survey Data for Determining Salaries for the Positions
7. Evaluation Chart for Determining Relationship of Actual Salaries to Point Ratings of Standard Positions
8. Analysis of Evaluation Chart for Developing a Schedule of Position Grades with Salary Ranges
9. Comparison Charts for Checking Over-all Evaluation Structure
10. Position Grade and Salary Range Record Sheets for Recording Classification of Employes
11. Procedure for the Calculation Steps Within Each Salary Range
12. Policies and Procedures for Administering the Evaluation Program
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About the author

Philip H. Weber heads his own company specializing in compensation plans. Formerly with Business Research Corp., vice-president in charge of all client work in personnel field. Established evaluation plans for such companies as Cincinnati Milling Machine Co., Olin Mathieson Chemical Corp., The Northern Trust Co., Detroit Edison Co., United Air Lines, Inc., Lone Star Cement Corp., Admiral Corporation, Armour and Co., and Weyerhaeuser Timber Co. Served as president of Industrial Management Society. Frequent speaker and writer on wage and salary administration problems. Directed MBA's first nationwide study of machine accounting salaries in 1959.

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Automation Adds the Personal Touch to an Order-Taking Routine

IGNORING its usual role as the "impersonalizer," automation has actually contributed a personal service atmosphere to a high-speed order taking system at Mechanics, Inc., world's largest distributor of Formica.

It takes less than a minute for one of six order-takers to receive a telephone call from a customer, write out his order, deduct the quantity from inventory and give the customer a verified shipping date—probably the next day. Within another few seconds the order is passed to a teletype station and transmitted to one of four warehouses where it is received in the form of six working copies—an invoice, work sheet, numerical copy, office file copy and shipping receipt. All of the paper necessary to implement the order has been created at one time.

There is no need for hand transcription or multiple handling of the order at the warehouse, and the chance for error at this point has been eliminated.

Because Mechanics' customers are large fabricators and lumber yards they can command personalized handling of their orders as well as speed and efficiency in shipping and billing. Under the new system, each of the six order-takers serves her own group of customers. Each customer calling has a private number which diverts his call from the switchboard directly to the girl assigned to take his order. She, in turn, is familiar with the

At the push of a button, the large rotary file spins customer and inventory information to any one of the six girls taking a telephone order.

It takes only a matter of seconds to record an order, control inventory and give the customer a shipping date at Mechanics, Inc. Each order-taker serves a separate group of customers.

personality and requirements of each of her customers, and she can aid them if items are out of stock or a substitution must be made. The customers in each of the six territories know that there is one individual in the order department who has been trained to personally assist them.

The order-inventory control operation is based in the company's Woodside, N. Y., headquarters. In the heart of the "order-taking center" is a large, motorized rotary file which can spin a record to any of six persons seated around its circumference. The file, created by Acme Visible Records, Inc., is 77½ inches in diameter and can store up to 100,000 records of customers and products—all available to an operator at the push of a button.

As a customer call is routed to the proper station, the order-taker presses a button that spins the appropriate record to her desk. At a glance she can see if the material being ordered is available in the nearest warehouse, if it must be shipped from another warehouse, or—if it is not immediately available—when the next shipment is expected.

She manually enters the necessary information —customer name, quantity purchased, width and length, description and (from the record) the bin number of the Formica ordered on a simple order form. She then updates the proper warehouse card in the file by indicating purchase date, customer code number, quantity and balance in stock at the warehouse of the particular kind of order. Facing the warehouse inventory cards are Mechanics' purchase record cards which show the date of purchase, order number and quantity received of all Formica purchased by Mechanics.

The entire procedure is completed at the order-taker's station. She takes the order, adjusts inventory and makes the necessary check to see if there is stock on hand without resorting to any other filing area.

Despite the multiple classification of products, the company has designed the visual filing system for complete ease of reference by making use of color coding and logical groupings. There is a color code for each classification of Formica—according to size, color and finish. When a card is flipped up, there is another card for each warehouse immediately adjacent. This card reveals the amount of the particular material which is available in each warehouse. This means the order-taker can tell at a glance where the order will be shipped from, and how long it should take for delivery. There is no delay for the customer while the girl "finds out if" the order can be filled.

Inventory control is centered in the same area. When material arrives in one of the warehouses, the purchase record card is adjusted and the shipment is added to the physical inventory at the warehouse. The balance on hand in each warehouse is always up to date and accurate.

As soon as the customer's order is taken, the adjustments are made on the inventory and purchase records and the simplified order form is passed to the teletype station which is near the record file desks. As the order is sent, it automatically prepares a six-part invoice-shipping form at the warehouse receiving unit.

Miss Pat Monte, manager of Mechanics, Inc., pointed out that "Order-taking can be a routine, listless job, or it can be one of the most important aspects of good customer relations."

Automation, in her opinion, has not only improved the speed and efficiency of service to Mechanics' customers, it has made it possible to offer a much higher degree of personalized attention to their individual needs. ■

Rockets *Continued from page 22*

Final budget information, compiled by the computer, is automatically recorded in graph form, on film, by the IBM 740.

head rate, estimated price adjustments on certain purchases and estimated charges on cancelled contracts with suppliers. It was created to meet the complex problem of budgetary control over a wide variety of research and development programs and has been applied with notable success to the production of rocket engines for Atlas, Thor, Jupiter and Saturn.

Funds are allocated and budget responsibilities assigned for all phases of a particular function to the manager in charge. For example, a production manager is responsible for budgeting the cost of testing the parts he manufactures even though the tests may be performed by another group.

Cost details, collected and grouped according to functional responsibility, are transferred daily to punched cards. At month end, the punched card data is converted to magnetic tape and transmitted by microwave to computers at North American's Los Angeles division. There the data is fed to a 705 computer to update "balance forward" records and the results transmitted back to Rocketdyne. The data is then fed into a 709 computer which converts it to graphic information and portrays it on a seven-inch cathode ray tube. It is then photographed by an automatic 35mm camera and the film processed to produce individual report graphs for management.

On each graph are two plots: a line representing planned expenditures and another showing actual project activity. For precise dollar reference, the difference between the two lines is printed numerically. It takes less than 12 minutes to photograph the 200 monthly graphs which flash on the viewing tube. The photos are processed at once, compiled into report books and placed in the

hands of management the following day. This is approximately 10 days after the books are closed at the end of each month.

Other jobs performed by the data processing operation include: payroll, accounts payable, plant property inventory, personnel records, labor distribution and cost accounting.

The EDP operation has a staff of some 200 employes. About 54,000 cards are punched daily and the average number of characters processed daily by the computers total 2,600,000,000, equivalent to 4,000 average-sized books. Some 264,000,000 of these characters are sent over the microwave daily, involving some 21 miles of magnetic tape. Altogether, an average of 200 miles of magnetic tape is processed by the department each day.

Computers for "What not to do"

Engineering spokesmen at Rocketdyne credit the computers with "showing us what not to do." In two to four minutes it can furnish engineering with answers that would otherwise have to come from actual tests. These additional tests would require facilities costing millions of dollars and many months to build. The 709 computers also provide information impossible to obtain under any other circumstances. Example: What thrust will a simulated fuel deliver at a whole range of altitudes? This could not be determined from a ground test stand. A computer program provided the answer and was instrumental in the discovery of Hydyne, a propellant used in the Redstone engine which launched Explorer I, America's first successful satellite.

Rocketdyne has bridged the gap between theoretical and actual in machine tooling through a numerical control program that directs the course of a milling machine in the Canoga plant. Highly complex parts, that once took up to nine months to tool, are now ready in two to three weeks, and simpler parts are produced to tolerances never before possible. The system starts with a blueprint that is converted to punched cards which are then fed to the 709. The computer prepares the design information and projects the path of the cutting tool on the cathode ray tube. A picture is taken and shown to the engineer to be sure the part is what he wants, before actually putting the program on the milling machine. With the picture approved the computer design information is converted to a punched tape which automatically controls the machine producing the finished part.

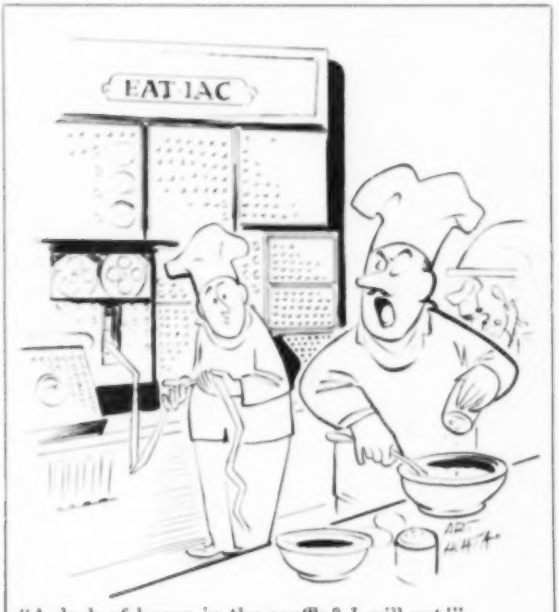
"Open Shop" programming

One of the secrets of Rocketdyne's successful computer approach to scientific programs is their "open shop" programming system. Some 400 engineers are trained to write programs for the 709's. This has been made possible through the use of FORTRAN, a formula translator which enables the engineers to program in language familiar to them. Open shop programming, as opposed to a system where a staff of full-time programmers prepare all programs, puts a super slide rule—the 709—directly in the hands of the firm's creative engineers. They understand its capabilities, and they utilize it to its fullest extent.

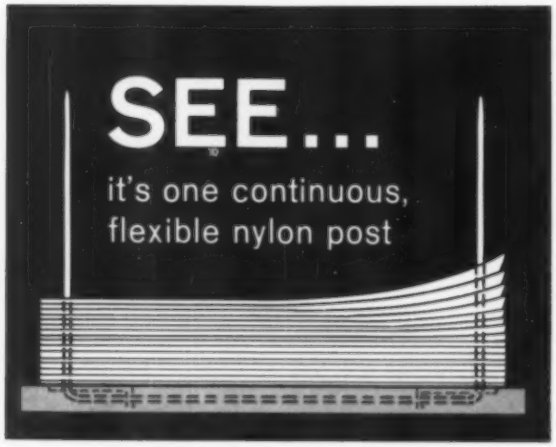
To translate these concepts into layman's language: the operation of a rocket engine test stand costs about $2,000 an hour. The 709 can take an "impressive sub-sample" of data from a test and reduce it in about four minutes. The information tells the engineers whether the engine met all specifications, and whether they can set up for the next run. At $2,000 per hour, maximum utilization of the test stand is hardly a minor consideration.

Rocketdyne officials feel that they have merely scratched the surface regarding the tremendous potential of electronic data processing. They visualize the day when a component part can be created by talking into a microphone, with a computer plotting the shape of a part, and numerically controlled equipment producing it.

One thing is certain. Rocketdyne management believes in "complete integration" in data processing and is moving toward it. Each step will be well thought out, valuable in itself, and valuable to the firm's continuing progress toward achievements still over the horizon of this space-age world.■



"A dash of lemon in the souffle? I will not!"



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Microfilm at Redstone

Continued from page 34

Tabulating card files shown above contain the 850,000 active engineering documents in aperture card form—the microfilmed records for the entire guided missile program.

ARGMA has formulated and put into its mechanized system other punched card projects which tie-in with and control the engineering drawing operation. These projects are designed so that they can be switched from a basic machine operation to an eventual high-speed computer operation. One example is a "Generation Breakdown" system. This was devised by center personnel, and in operation it provides the required related data for engineering drawings. A punched card deck, simple in design, is furnished by the contractors along with the microfilm card. From this single deck, ARGMA can prepare mechanically: (1) a complete generation breakdown to include nuts, bolts and screws for any major item of any given missile or rocket system; (2) engineering parts lists; (3) engineering drawing lists; (4) engineering specification lists; (5) parts usage lists, and (6) engineering drawing number accountability.

Breakdown of a generation

A six-position line item numbering system has been devised for the generation breakdown. With this system, approximately 476,000 items for any major item can be mechanically controlled, with the possibility of making approximately 2,000 changes and additions between any two line items of that major item. As far as it is known, this is the only system of its kind, and it has proven to

be the most effective and efficient method in controlling line item or assembly sequence.

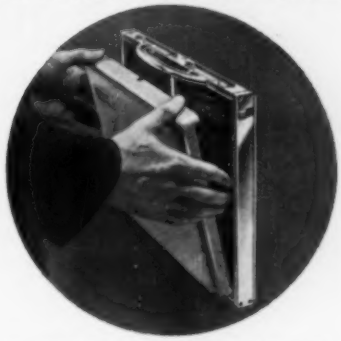
The specific objectives obtained by the generation breakdown are: (1) mechanized preparation of an engineering document of parts contained in a major item component, in assembly order, or a given system; (2) mechanized preparation of drawing lists, specification lists and parts lists; (3) a mechanized method of inventorying engineering drawings; (4) an aid toward standardization of specifications; (5) a means of expediting and assisting procurement, and (6) mechanized preparation of "used on" or "next assembly" information.

These objectives can be prepared as separate listing or reports, or, all objectives can be listed or reported on one document.

Much of the mechanical equipment now in use at ARGMA was the result of satisfying specific needs at the agency. These needs were met by equipment suppliers who stationed personnel at Redstone Arsenal to develop, with ARGMA, adaptations of existing equipment which would do the jobs required.

Future plans of the agency call for even further expansion of the mechanized engineering documentary filing system. Feasibility studies are currently being conducted on additional modifications to the system which will permit more rapid search of filed microfilm documents. The use of closed circuit TV to bring the filed documents rapidly to the engineer desiring to examine them is another revision which is being studied.■

NEW **Self-Contacting Control Panels with Thumb-Pressure Cover Release!**



Easy off — Easy on — without removal of cover screw fasteners

Attractive, plastic-light VPC control panel covers are more durable than sheet metal. Will not corrode, bend, dent or conduct electricity. Additional VPC panel advantages include: unmatched clarity of characters . . . aluminum frame and contoured handle lightness . . . 24 hour shipping service . . . unconditional guarantee.

VPC

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VIRGINIA PANEL Corporation

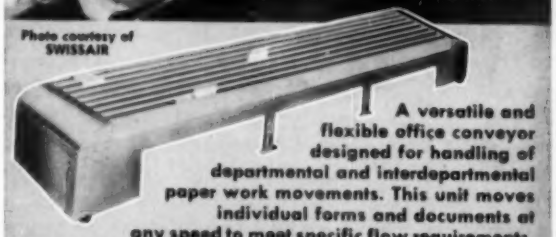
Post Office Box 1106
WAYNESBORO, VIRGINIA

For More Information Circle Reader Service Card No. 170

The MERCURY "OFFICE" CONVEYOR

A NEW CONCEPT IN *Automation*

Photo courtesy of SWISSAIR



A versatile and flexible office conveyor designed for handling of departmental and interdepartmental paper work movements. This unit moves individual forms and documents at any speed to meet specific flow requirements.

Executives engaged in time study, methods, systems or procedures are invited to write for Bulletin No. 500.

MERCURY INDUSTRIES, INC.
365 BROADWAY • HILLSDALE, N. J.

NORTH 4-2636

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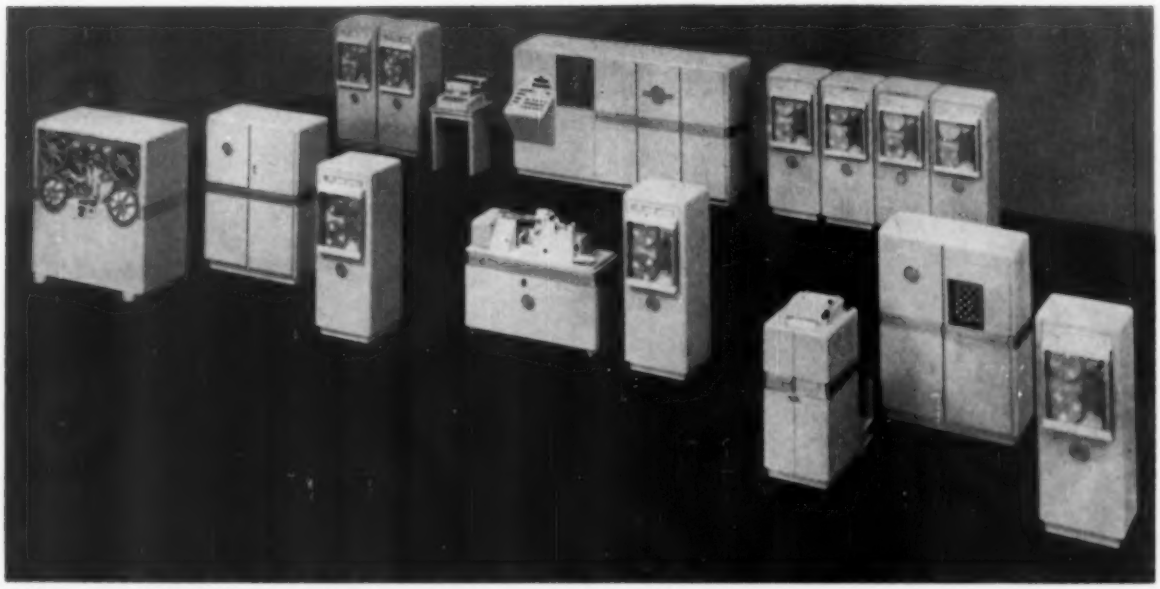


Addressograph-Multigraph's 900 Series system is custom-designed for the user who requires data manipulation rather than complex computations.

A-M 900 Handles Volume Data Operations

An MBA Product Preview

AN ELECTRONIC data processing system designed to provide complete automation in large volume data handling operations, where the principal requirements call for data manipulation rather than complex computations, has been introduced by Addressograph-Multigraph Corp.

The system is custom-designed for the user and features reduced programming costs and new high-speed printers to facilitate the economy factor. The central unit of the Series 900 system, the Model 943 File Processor, has the ability to match, sort, update, add and delete individual records in a magnetic tape master file. In addition, it can perform all the normal arithmetic functions.

Up to 12 tape-handlers, permitting simultaneous read-write and compute, can be used. The magnetic tape records are read into a solid state core memory and processed by transistorized logical and arithmetic units. The number of core storage positions, logical and arithmetic units, associated with a system is determined by the specifications of the job being processed.

For example, the user is not limited to standard modules and can order any configuration, ranging from 100 positions to any upper limit which is practical for the job.

For the most part, complex programming is eliminated. The system is controlled by panel wiring, and A-M provides all programming involved in initial procedures adapted to the system.

Other units include the Model 950 Multi-Stylus Serial Printer, the Model 940 Punched Card to Magnetic Tape Converter, and the A-M Series 900.

The 950 is designed to provide maximum speed and economy in the printing of names, addresses and associated data at a rate of 45,000 complete units per hour. Up to six separate lines can be printed simultaneously on mail labels or transfer master tape. The Model 960 printer operates at 900 lines per minute and uses conventional marginally-punched continuous forms. Up to four carbons can be produced. Both printers accept magnetic tape, either from the A-M system or from other conventional computers.

The card-to-tape editor-converter will convert either 80 or 90-column cards to magnetic tape at speeds up to 1,000 per minute. Conversion is usually performed off-line, but the unit may be arranged on-line as direct input to the 943 central unit.

The system also has a Model 942 tape editor-converter available which converts metallic or plastic output tapes from various types of EDP equipment, off-line, to a form compatible with the A-M high-speed printers. Circle No. 123

Another big plus for Honeywell Electronic Data Processing Systems

All new Honeywell printer sets down copy crisp and clean-- at a speed of 900 lines a minute

Printing is the final payoff in business data processing. All the electronic gymnastics and gyrations that go on within the complex equipment can be judged only by the finished product — the payroll check, the invoice, the market report.

No ghosting, no smudges. Blazing fast, accurate, durable and easy to service, the new Honeywell high-speed printer writes a happy ending to every job. Its ultra-fast hammers are self-adjusting for perfect vertical and horizontal alignment. You get no ghosting or smudges with this one! And that goes for each of the five carbons you may need.

Double your printing speed. Fast? The new Honeywell printer dashes off copy at a speed of 900 lines a minute. And here's a bonus: its extra-long printing cylinder accommodates forms up to 22 inches wide. This means you can print many forms *two up* (business checks, for example), thus doubling your effective printing speed.

Built for uninterrupted service. To make sure this printer will maintain a proper adjustment and alignment indefinitely, Honeywell has built it of age-cast aluminum. All the stresses and strains are removed before machining. Replacements are easy to make, too. No other high-speed printer has so few moving parts, and most of these parts can be replaced within 15 minutes.

GET THE FACTS. *To learn more about this printer and the many other advanced features of Honeywell 800 and Honeywell 400, just write Minneapolis-Honeywell, Datamatic Division, Wellesley Hills 81, Massachusetts.*

Honeywell

Electronic Data Processing

For More Information Circle Reader Service Card No. 172

An MBA Product Preview

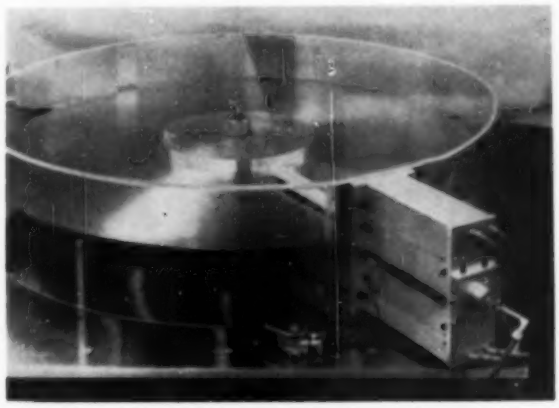
Full-scale model of Telex I shows arrangement of disks and the head-positioning actuators.

Telex Develops Two High Capacity Mass Memory Modules

A HIGH capacity disk file Mass Memory Module, designed to provide storage capacities and random access speeds to fit present-day computer capabilities, has been developed by the Data Systems Division of Telex, Inc., St. Paul, Minn.

Called the Telex I and Telex II, the new units use multiple read-record heads that literally "fly" over the surface of storage disks, and are said to have marked superiority in capacity, performance and cost over existing data processing mass memory systems.

The Telex II has a capacity of nearly 100 million characters. Access time has been reduced from the normal 700 milliseconds to 150 milliseconds. Recording disks, 64 for the Telex II and 16 for the smaller Telex I, are spaced on a vertical, motor-driven switch. Read-record heads are mounted in opposed pairs on a two-pronged positioning arm so that one pair serves the upper surface of each disk; the other, the lower surface. With each disk having its associated heads and positioner, no time is needed to move read-record heads from disk to disk. Two or more of the Telex head positioners may be in motion at the same time.



Read-record heads and head positioners are pictured here. Disks are 31 inches in diameter.

One key to Telex's performance is the airfoil type design of the read-record heads, an innovation which allows the heads to ride on the boundary layer air which surrounds the rapidly-rotating disk. This makes possible the multiple mounting of heads, with two pair operating in conjunction with each of the 31-inch recording disks.

The Telex II has a capacity in excess of 617 million bits, while the Telex I, with fewer disks of smaller capacity, can store around 150 million bits. In physical size, the Telex II measures 84 inches long, 12 inches high and 36 inches deep. It weighs some 3,000 pounds and has a power consumption of 7 kilowatts. The Telex I is slightly smaller. Expected price range is from $50,000 to $100,000. The Mass Memories will be available to computer manufacturers and, on a purchase basis, to computer users. Circle No. 125

New RECORDAK RELIANT 500 Microfilmer is only half the size you'd expect a large-volume microfilmer to be

New RECORDAK Microfilmer takes up to *1,000 pictures per minute!*

The fronts and backs of 500 checks—1,000 pictures in all—can be taken in 1 minute with the new RELIANT 500 Microfilmer.

Larger sized records—up to 12 in. wide, any length—are microfilmed at proportionate speeds. For example, 185 letter-size records can be copied in a minute for a fraction of a cent each!

Speeds reference, too! Items are also indexed on the film in the automatic microfilming operation. Code lines lead you right to the pictures you want when you refer to films in a RECORDAK Film Reader.

New RELIANT 500 boasts many features. For example, film units are instantly interchangeable, allowing various departments to microfilm with their own units . . . preserving record continuity, and reducing need for extra microfilmers.

Free folder gives details on this new microfilmer which brings increased efficiency to office routines.

RECORDAK®

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming
—now in its 33rd year

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contact Recordak of Canada Ltd., Toronto

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415 Madison Avenue, New York 17, N.Y.
Send free 4-color folder describing new RECORDAK RELIANT 500 Microfilmer.

Name_____ Position_____

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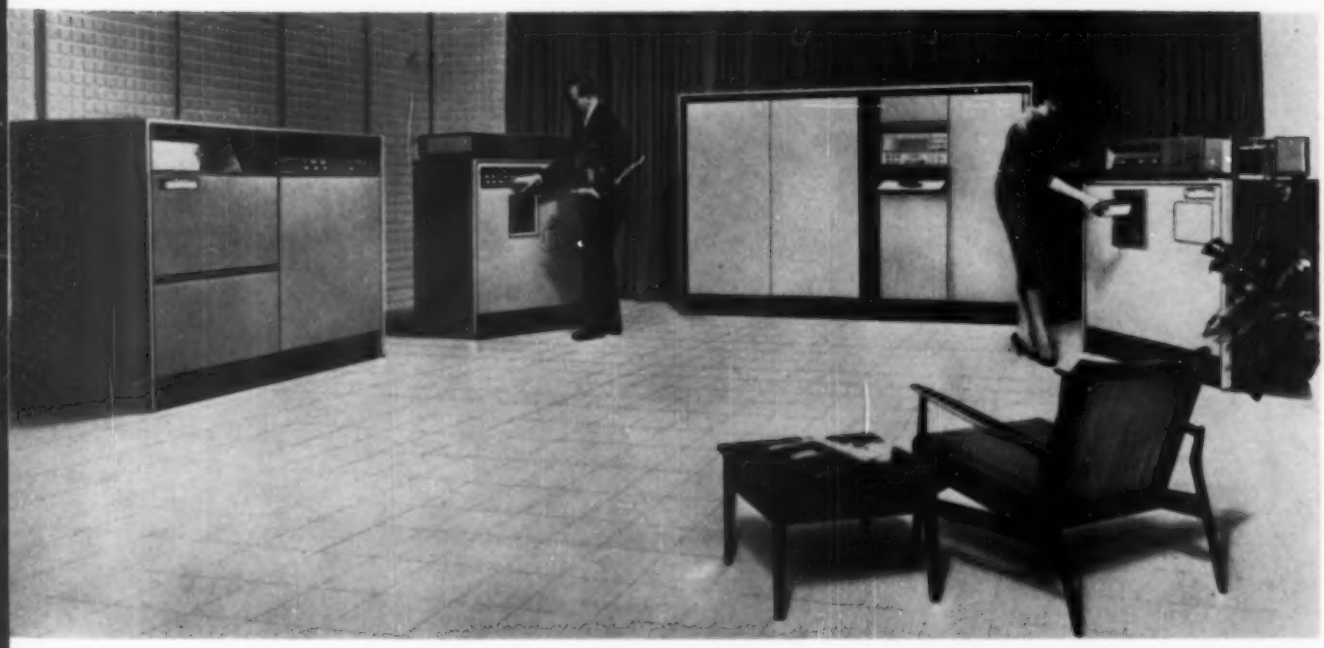
For More Information Circle Reader Service Card No. 173



Basic STEP system consists of four units with Univac as a nucleus.

STEP—a Computer System by Rem-Rand For Small Business

A NEW computer concept for bringing electronic data processing to small business—the Univac STEP—has been introduced by the Remington Rand Univac Division, Sperry Rand Corp. The STEP system, so named for "Simple Transition to Electronic Processing," is immediately available.

According to J. W. Schnackel, vice president and general manager of the Univac division, the new solid-state computer system has been developed for customers now using punched card equipment but who have growing electronic data processing needs.

"A unique feature of the STEP plan," says Schnackel, "is its flexibility. With the Univac Solid-State computer as a nucleus, the basic system consists of four units which can be easily expanded to greater capacity when growth of business demands it."

The Univac STEP consists of four units: a central processor with a 26,000 digit capacity; a high-speed reader handling 450 punched cards per minute; a punch unit handling 150 cards per minute, and a high-speed printer. The system can simultaneously read four cards, punch a fifth, print out data and solve arithmetic problems.

The STEP can be expanded by adding up to four additional memory units, each of which will carry 6,000 more digits, making possible an ultimate capacity of 50,000 digits which equals that of the standard Univac Solid-State computer. Similarly, the basic central processor's arithmetic speed can be stepped up by the addition of a multiply and divide unit.

The STEP will rent for $3,500 per month, with a nine-month delivery schedule. According to Univac officials, the basic system is compatible with equipment now in use and can be readily applied to payroll problems, billing and inventory control jobs, sales analysis, statistical reports, and saving and mortgage loan accounting. The system can also be expanded to include complex production control, planning and scheduling, wholesale billing and similar jobs.

The STEP plan, says Mr. Schnackel, opens a safe, sane and relatively inexpensive door to computer processing and brings it within reach of small and medium-sized businesses. Circle No. 124

ADD TO THE ACCURACY OF YOUR DATA PROCESSING!

Now, as information originates, you can create basic input media to accompany your product through manufacturing, inventory and shipping.

You reduce human error when you create basic input media at the point where data starts! A single Dennison Print-Punch setting produces a machine language history of an entire series of operations on a durable flexible ticket . . . virtually eliminates errors due to manual recording, selection and key punching of data.

Low-cost Dennison Print-Punch Machines are simple to operate! They can be operated by anybody and located where you need them . . . from Receiving to Shipping and anywhere in between. Available models simultaneously print and punch 20 column, 25 column or 31 column tickets at a speed of over 300 stubs per minute.

Dennison Print-Punch Tickets are versatile, too! These miniature partners of your present punch cards can travel places and stand abuses that handicap larger input media. Available in continuous strips of single and multi-stub tickets — serially or repetitively numbered — they can be tailored to fit just about any control or accounting system.

Compatible with most data processing equipment! Dennison Print-Punch data can be automatically converted to punched cards or tapes.
Interested? This coupon will bring you the information you need.

Dennison

Helping you compete more effectively.

Dennison Manufacturing Co., Machine Systems Division
Framingham, Mass. Dept. K-98

Please rush your brochure on the use of Dennison Print-Punch Tickets and Machines for extending automatic data processing efficiency to inventory, reorder, production and inspection systems, payroll and cost accounting.

Name.....Title.....

Company.....

Address.....

City.....Zone.....State.....

For More Information Circle Reader Service Card No. 190

Who Discovers the Discoverers?

"A professor can never better distinguish himself in his work than by encouraging a clever pupil, for the true discoverers are among them, as comets amongst the stars." CARL LINNAEUS

Somewhere in this mighty land of ours, a gifted youth is learning to see the light of tomorrow. Somewhere, in a college classroom or laboratory, a dedicated teacher is gently leading genius toward goals of lofty attainment. Somewhere the mind of a future discoverer—in science, engineering, government, or the arts—is being trained to transcend the commonplace.

Our nation has been richly rewarded by the quality of thought nurtured in our colleges and universities. The caliber of learning generated there has been responsible in no small part for our American way of life. To our college teachers, the selfless men and women who inspire our priceless human resources, we owe more than we will ever be able to repay.

Yet how are we actually treating these dedicated people? Today low salaries are not only driving gifted teachers into other fields, but are steadily reducing the number of qualified people who choose college teaching as a career. At the same time, classrooms are beginning to get overcrowded. In the face of this, college applications are expected to double by 1967.

This is a severe threat to our system of education, to our way of life, even to our very existence as a nation. Our colleges need help—and they need it now!

HIGHER EDUCATION
KEEP IT BRIGHT

If you want to know more about what the college crisis means to you, and what you can do to help, write for a free booklet to: HIGHER EDUCATION, Box 36, Times Square Station, New York 36, New York.

ADVERTISING COUNCIL PUBLIC SERVICE

Sponsored as a public service, in cooperation with the Council for Financial Aid to Education

Mark a date . . . to see the new
UNIVAC OPTICAL SCANNING PUNCH

. . . another major first for 90 column punched-card users!

- SINGLE-STEP AUTOMATION. Eliminates key punching. Reads marks *optically*, transforms them into punched holes—*all in one operation.*
- EASY, ACCURATE. No special pencils are needed. Use any soft, ordinary pencil.
- FASTEST. Reads and punches up to 6000 digits per minute, or 9000 cards per hour.
- BIG CAPACITY. Senses and punches up to 40 columns of marking on one side, 80 columns using both sides.
- BUILT-IN RELIABILITY. Adjusts even to faint markings. Internal checks eliminate errors.
- BROAD APPLICATIONS. Piecework computation, inventory, billing, order department, labor distribution, many others.
- BROAD USABILITY. Anyone who can use an ordinary pencil.

For full details, call or write the Remington Rand Branch Office in your area. Ask for a free copy of the NEW BROCHURE "The Optical Scanning Punch."

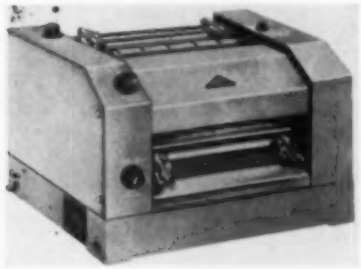
REMINGTON RAND
UNIVAC
Division of Sperry Rand Corporation

For More Information Circle Reader Service Card No. 174

MBA Showcase

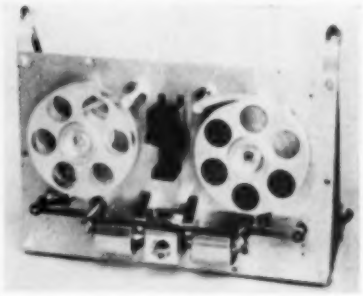
New Products for Business Automation

High Speed Printers



A new series of high speed printers, for readout from data processing systems, is announced by the Anelex Corp. The four models stress simplified operation, accessibility and reliability. Two basic series are available. The Series 4-1000-SD, offers normal printing rates of 1,000 lines per minute of alphanumeric characters and 2,000 lines per minute of numeric printing. A second, Series 4-500-DD (lower in cost) offers 500 lines per minute of alphanumeric characters and 1,000 lines per minute of numeric characters. Normal line length is 120 characters although more or less is possible. Circle No. 109

Punched Tape Reader



A high-speed punched tape reader capable of stopping on a character at the normal tape reading rate of more than 200 eight-bit characters per second, has been developed by the Westrex Corp., a division of Litton Industries, for use with computer-controlled systems. An optical scanning system is used to read the characters without stopping the tape. Photo-sensitive silicon diodes and completely transistorized circuits provide DC response characteristics in the data channels. Reading characters on punched, one-inch Mylar or paper tape. Circle No. 117

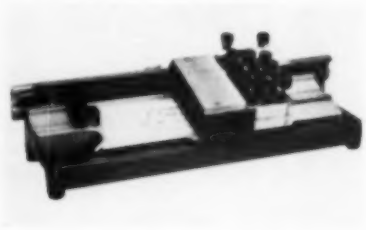
Carriage Tape Rack

Elimination of the harmful rolling and folding of paper tapes is provided with MAC Panel Co.'s "Carriage Tape Rack" for holding paper tapes used with such IBM machines as the 402, 403, 407, 408 and 409. The rack may be attached to the wall with screws or right to the machines by means of adhesive tape already mounted to the back of the rack. Labels of identification are clearly visible at the top of each tape. Circle No. 108

Data Converter Series

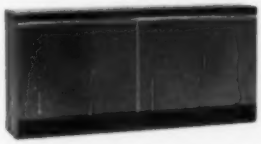
In addition to tape-to-tape conversion the D300 series data converter from Digitronics Corp. can also have card input and output. Fully modular construction is featured in this solid-state unit, permitting the user to specify only those features which he requires. Among the optional features are format control, reordering, translation and increased memory. The device has the ability to convert information between punched paper and magnetic tape in either direction, operating at a rate of 3,000 words per minute. Circle No. 104

Auxiliary Keypunch



Auxiliary punching for immediate replacement of damaged cards or for making corrections or additions without interrupting the normal routine is an advantage of the compact mechanical keypunch, the Model 001, manufactured by Panels Wires Inc. Its small size and light weight make it convenient to carry or place on a desk or tabulating machine top. A built-in receptacle catches punching chips. The numerical keyboard has the standard IBM design, with 14 keys—one for each card punching position plus two additional keys for card spacing and release. A marginal stop with quick release permits cards to be set to desired column as indicated on a calibrated gear rack. Circle No. 105

BENDIX G-20



WITH ORGANIZATION CHART DESIGN

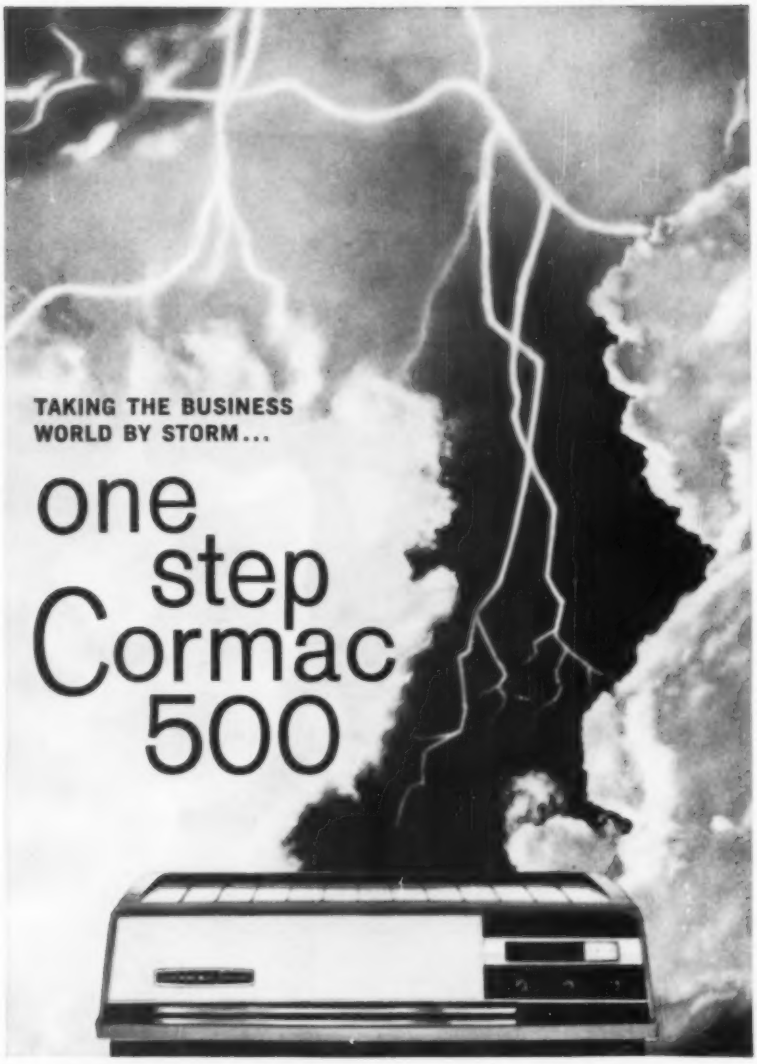
MEANS PRACTICAL EXPANDABILITY IN

BALANCE WITH APPLICATION GROWTH

Just as the organization chart of any enterprise provides the framework for dynamic growth and adaptation, so "organization chart" design provides the framework for unparalleled expandability in the Bendix G-20 data processing system. This means that your G-20 can economically match, step by step, your expanding scientific or business computational workloads ... without sacrificing system balance. • Key to the organization chart efficiency of the Bendix G-20 is the ability of the Central Processor to "delegate" routine data handling tasks to control buffers, acting as "line supervisors." Thus freed, the Central Processor can make most efficient use of its high computation speed, its ability to schedule program priorities and direct accessory equipment assignments. • The ability to employ many control buffers gives new meaning to expandability in the Bendix G-20. Up to 70 input/output units can be directed by each of these "line supervisors." The Bendix G-20 has a complete line of accessory equipment including keyboard, paper tape, punched cards, high speed line printers, and 2 million word magnetic tape units. • Memory represents another dimension of G-20 expandability, ranging from 4,096 to 32,768 words. • Investigate the organization chart design of the Bendix G-20. See how it provides balanced, *practical* expandability ... at a cost that assures unequalled data processing performance per dollar invested. • ***For detailed literature write:***

Bendix Computer Division
DEPT. U-27 LOS ANGELES 45, CALIF.

THE Bendix CORPORATION



CUTS COPYING TIME ONE-THIRD!

Now, for the first time, you can make photo-accurate copies of **anything** up to 14" wide by any length in one quick, simple operation ☐ Just slip in the original... take out a perfect, permanent copy—in seconds ☐ No separate exposure and process steps ☐ No chemical handling ☐ No mess ☐ No waste of time and materials ☐ The Cormac "500" makes perfect copies of **any** original—pen, pencil, crayon, any ink, even spirit duplications ☐ Anyone can operate it, even a green office boy ☐ It is the most efficient, economical, versatile photocopy instrument you can buy ☐ And it's beautiful, too—designed by Raymond Loewy Associates in two-tone unbreakable cabinet that blends with any office decor ☐ Start saving time, money and work in your office now—with the Cormac "500" ☐ It carries the famous Cormac reputation and is available through Cormac's nation-wide sale-service and dealer organizations ☐ For full information or a demonstration in your office, mail the coupon below ☐

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Company _____

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City _____ Zone _____ State _____

SOLD AND SERVICED BY FACTORY-TRAINED REPRODUCTION SPECIALISTS

For More Information Circle Reader Service Card No. 176

Tandem Stock Forms

Stock tabulating forms are now available on a two-up basis (two forms, side by side, separated by a perforation). This principal has previously been restricted to custom forms. The new forms, called Tandem Tab, are available from Wood Business Forms, Inc. The new stock forms offer several advantages: A six part form can produce 12 copies of a report, and two original copies are always available. From a cost standpoint, the two-up, six part form is far less expensive than a regular 12 part form. Clarity of carbon copies is another advantage of the tandem sets. The side by side forms are particularly adaptable to the IBM 407 printers. Circle No. 126

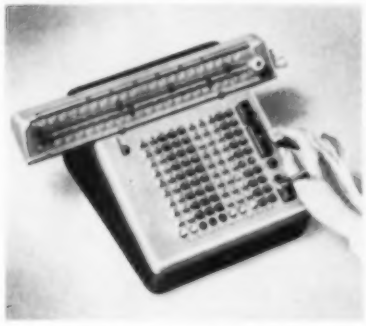
Mobile Radio Telephone

Plug-in telephone or two-way radio facilities for any car may now be obtained from the Industrial Products Div. of International Telephone and Telegraph Corp. Without modifying the chassis, the model MT600 Autocom may be used with future radio-telephone systems employing two-way dialing duplex operation and more than two RF channels. Used as a mobile radio it is compatible with all existing systems, designed for split channel operation to comply with FCC requirements. Standard components and readily available parts are used throughout. The equipment comprises four main sections; power supply, transmitter, receiver and selector. It measures 16 by 9 by 4½ inches and weighs 25 pounds. Circle No. 114

Steel Transfer Files

Steel Transfer files, No. G3736, added to Dolin Metal Products line, feature six drawer, economy steel tab card file with nylon glide equipped drawers with smoother action and minimum outside dimensions. They measure 16 11/16 inches wide, 12⅞ inches high, and 24⅛ inches deep. Drawers can be interlocked or interchanged with companion drawers. Also available in a two drawer model, the No. G3732 tab file. Compressor-spring follower blocks are available in either model. Circle No. 113

Compact Calculator



"The world's most compact calculator with full keyboard," is the way Monroe Calculating Machine Co. describes its new Model LA-9. The low-silhouette calculator takes up no more space than a telephone. A new feature is the "quick-shift" control lever to permit easier, faster carriage shifting. Carry-over upper dials makes short-cut multiplication possible. The unit is electrically operated and available in two capacities—the LA9-203 with 10 col. keyboard, 10 counting dials and 20 place-result dials, and the LA9-163 with 8-8-10 dials. Circle No. 120

GC PRECISION PUNCHING CAN HELP YOU DO A BETTER JOB IN THE TAB ROOM

HERE'S HOW...

Your tab room will run more smoothly because of what we carefully *take out* of GC Data Processing Forms — the marginal punches.

GC punches are *accurately spaced and aligned.* No off-register punches to make a form jam or jump the track when a printer is going full tilt. With GC there can be no cumulative error or creep as succeeding sets of forms run through your machine.

GC punches are *clean* and leave no "confetti" behind. Confetti (the paper discs that are punched out) can block the transfer of data by getting between the carbon and the form. GC removes the discs as soon as they're punched to eliminate this problem.

We inspect our forms — and inspect them carefully — to make sure that the holes are accurately spaced and in perfect alignment. We take similar care with any file hole punching you may require.

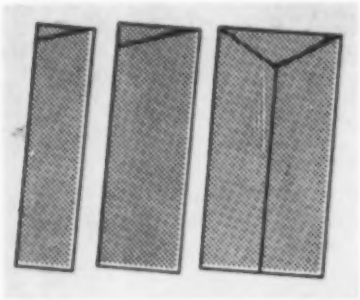
We win friends with our wide selection of paper, too, and with our carbons, inks and construction techniques. Write us today for the name of the GC Forms representative nearest you.

DATA PROCESSING FORMS

Manufactured by:
CLARKSON PRESS INC.
189 Van Rensselaer St., Buffalo 10, N.Y.
A Subsidiary of
GRAPHIC CONTROLS CORPORATION

For More Information Circle Reader Service Card No. 182

Tape Pocket Envelopes



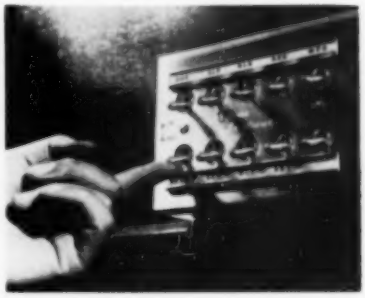
Single and twin pocket envelopes designed for holding punched paper tape in conventional tabulating card files are now available. These special envelopes are lined with polyethylene film to prevent the bleeding of the oil in the tapes. They may be used in either vertical or horizontal positions depending on the type of file currently used. Dresser Products Inc. makes and distributes the file envelope in three sizes; No. 8065-11 at $1\frac{5}{8}$ inches wide, No. 8065-10 at $2\frac{1}{4}$ inches wide and No. 8065-12 at $3\frac{3}{8}$ inches wide with twin pocket. All envelopes are $7\frac{3}{8}$ inches long. Circle No. 122

companion piece to your data processing...
APPLIES LABELS
pre-addressed from card or tape
TO ALL TYPES OF PRINTED PIECES
CHESHIRE
MODEL E
Automatically applies up to 16,000 labels per hour to post cards, envelopes, insertion cards, pamphlets, brochures, lightweight booklets, magazines, catalogs and quarterfold tabloids. Applies roll strip, continuous pack form and tape strip labels, pre-addresed from punched cards, magnetic tapes, plates, stencils and other addressing systems (even applies cut or individual labels). Compact . . . and so simple it can easily be operated by your own personnel. Time purchase plan, if desired.
Write for descriptive Model E brochure
CHESHIRE INCORPORATED
DEPT. MB-10, 1644 N. HONORE ST.
CHICAGO 22, ILLINOIS
SEE A DEMONSTRATION IN BOOTH NO. 26 AT THE DPMA SHOW IN MIAMI, Oct. 9-13
For More Information Circle Reader Service Card No. 178

Telephone Intercom

Automatic Electric Co., subsidiary of General Telephone and Electronics, announces that more intercom service is now available with their new "Call Commander" telephone. An expansion of the 10-A1 key system, this pushbutton telephone network is equipped with a maximum of 18 pushbuttons for outside line and intercom service. Access of up to 18 central office or PBX lines is possible. Circle No. 110

Executive Call System

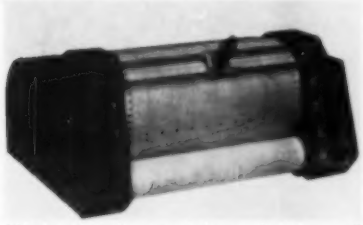


Receptionists can determine if executives are in their offices at the flick of a button on the "In-dictator" system, introduced by Edwards Co., Inc. The device keeps track, noiselessly, of key office and sales personnel in small to medium sized offices, banks, plants or departments of large organizations. The system contains three elements—a 10 or 20-name register, a compact indicating panel and a low-voltage transformer. The register can be installed near any entrance while the indicating panel is placed on the reception desk or telephone switchboard. Executives switch the register switch "in" when they enter their office or "out" when they leave or wish to maintain privacy; indicator shows a red light for "out" and green for "in." Circle No. 102

Check-Digit Calculator

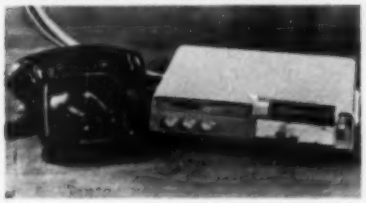
A special purpose calculator has been designed by Management Assistance, Inc. to simplify the adoption and use of self-checking numbers in accounting systems. The model, a WROC 330 Auto Checker, is approximately the size of a standard adding machine. "Split-second" computations can be performed to generate the check digit of a number, and it will check the accuracy of a number whose check digit is already known. No special training is required to operate the calculator. It may be used in conjunction with any of the self-checking numbering systems currently in use and is adaptable to other systems. Information is fed through the Auto Checker's own keyboard. Circle No. 107

Incremental Recorder



High speed, precision plotting of computer processed data is the function of a new X-Y recorder developed by California Computer Products, Inc. The recorder converts digital information regarding the relative variation of two functions into corresponding incremental motions of the plotting paper and the plotting pen. The Model 560-RX-Y digital incremental plotter can accept data from all digital computers and can be driven by both punched paper tape and punched card data processors. These capabilities give the plotter on-line and off-line potential in such applications as evaluating processed flight test data, monitoring industrial processes, statistical surveys and analysis of time varying systems. Circle No. 106

Network Office Dictation



Economy, increased clarity of reproduction, easier servicing and transistor power are the key advances stated by Dictaphone Corp. for their new Model RD6 Dictaphone Telecord Dictation System for network office dictation. The principal elements shown are the phone (left) and Time-Master recording machine. The user picks up the phone and is immediately connected with a recording machine in a central secretarial office, where his dictation is transscribed. The system can be adapted to an internal phone system, such as the Bell PBX, and can utilize a number of recorders and desk phones. Controls permit play back and indicate necessary corrections. A red light on the phone indicates when the recorder it is connected to is in use. Circle No. 112

So automatic and accurate you can start it and walk away!

Freedom from machine tending is only the beginning! The new Gathermatic by Thomas Collators brings to collating the speed and accuracy of larger, more expensive equipment... at a cost unbelievably low. Write today for complete information on the many ways you can speed up your collating operation and substantially reduce your costs.

- Offers more features at a lower price than any other collator of its kind
- Automatic miss and double sheet detectors stop machine instantly, prevent errors
- Stations can be skipped at the flick of a lever without hindering the full production rate
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- Gives over-all speed, ease and accuracy features formerly available only in large-scale collators
- Automatically collates, counts, criss-crosses or staples 6,000 sheets per hour

Thomas Collators Inc.
World's Leading Manufacturer of Collating Equipment
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OPEN-SHELF FILES ARE EASY TO REACH

WITH KIK STEP

Makes Everyone in your File Room 14 Inches Taller!

Kick it . . . it rolls wherever you want it; climb, even with arms loaded with files. The instant weight is applied, casters retract, base grabs floor. Can't wobble; can't slip; can't roll as long as you stand on it. Step back down. Kick it away as soon as you step off. Platforms have rubber safety tread. All-around bumper protection.

Cramer POSTURE CHAIR CO., INC.
625 Adams Street • Kansas City 5, Kansas
Circle Reader Service Card No. 185

Label Printer Is New Videograph Application

Reproducing address labels for direct mail and magaine subscriptions, at the rate of some 10 million labels every week on a one-shift basis, is the function of this high-speed label printer. This equipment is an extension of the Videograph system introduced by A. B. Dick Co. last year. Videograph can read and translate binary impulses directly from a computer, magnetic tape, paper tape or punched cards, display them on a television tube or oscilloscope, and print the translation on paper or labels electronically. This system was constructed particularly for use by large magazine publishing houses and operates in conjunction with an electronic computer processing the subscriber records on magnetic tape. Signals are edited, and prepared rolls of magazine address labels are produced at the rate of 36 labels per second. This machine is also equipped with automatic paper splicing equipment, flying shears and roll changing mechanisms to permit uninterrupted operation. Also featured is the matching of the sizes of label rolls with the correct number of subscribers in the various postal areas around the country. Circle No. 101

Haloid Develops Low-cost Xerographic Copier

Low-volume users of engineering drawings can take advantage of the economical Copyflo 1824 model printer by Haloid Xerox, Inc. Xerographic copies of engineering drawings up to 18 by 24 inches can be made from microfilm frames mounted in die-cut apertures of punched cards. Those beginning to utilize microfilm systems on a modest basis who may plan to gradually convert all file and active drawings to microfilm status, will also find the new copier practical. An ordinary cut-sheet paper starts the mechanism as soon as it is inserted. In seconds, a print or offset paper master of the aperture card emerges, dry and ready for use. No darkroom is required. The sharp black and white permanent print is made odorlessly, without waste and the finished print may be written on with pen or pencil. Circle No. 103

Desk Stapler

A desk stapler featuring a new kind of staple is introduced by Bostitch, Inc. with the Model B5U. A staple with both legs pointing in the same direction was produced to enable succeeding top sheets of stapled papers to be removed without having to remove the staple and refasten the remaining pages each time. The stapler was designed for use in banks, offices and insurance firms where items are more often attached to permanently-fastened copies of documents for short-time use. These "extra" pages can be removed from the rest by picking them up at the corner in the direction the staple legs point and pulling. Circle No. 115

Control Business Forms

Business forms, on which key control data is printed in giant-sized type, has been made available by Consolidated Business Systems, Inc. to enable business to achieve more rapid and accurate handling of material flow. This line of forms can be adapted to any system where data recognition is important. The one-inch and one and one-half-inch high numbers are called "Texas" and "Alaska" numbers, and can be printed on practically any size or type form. They can be used in inventorying, warehousing, or applied on tags. Circle No. 111

Copyflex System Takes the Writing and Waiting out of Order-Billing!

One writing does it for *any type* order-billing operation when you use flexible Bruning Copyflex copying machines. You eliminate clerical rewriting and retyping, get shipments and invoices to customers, days earlier!

Key to Copyflex flexibility is the original translucent order form. This can be a preprinted single sheet or a part of a snap-out or continuous form. On this original order form, data can be added or changed as necessary and copies made at any point to serve as shipping copies, stock-picking copies, factory orders, and finally invoices. For multiple shipments, reproducible copies can be made of the original to serve as "originals" for reproduction of as many sets of shipping, production, and invoice copies as necessary.

Ideal for business operations, Copyflex gives you sharp, black-on-white copies (or color coded) . . . at only a penny each for materials for letter size! Why wait when you can put an end to costly writing and waiting in your company by mailing coupon now.

BRUNING Copyflex.

Charles Bruning Co., Inc. Dept. 10-J
1800 Central Rd., Mt. Prospect, Ill.
Offices in Principal U.S. Cities
In Canada: 103 Church St., Toronto 1, Ont.

Please send me information on Copyflex for Order-Billing.

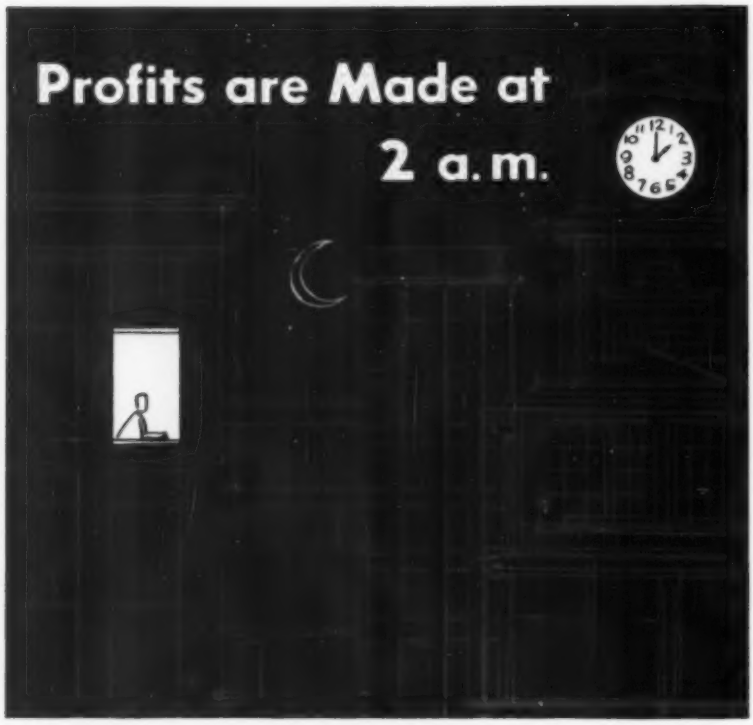
Name_____ Title_____

Company_____

Address_____

City_____ County_____ State_____

For More Information Circle Reader Service Card No. 181



The City sleeps, but this business goes on as usual, with the help of Baltimore Business Forms. Day and night customers phone their orders to central headquarters. Robot machines, in branch delivery offices, print orders simultaneously on troublefree Therm-O-Seal Handy-Fast Forms, recommended by the Baltimore Business Forms Systems Advisor. When morning comes . . . nighttime orders are completely written . . . ready for delivery without delay. The profits have been made . . . while the city sleeps.

Write or phone the Baltimore Business Forms Company for the interesting report . . . "A Robot Writes." Perhaps some of these money-making methods may be adapted to your own business.

Baltimore Business Forms

Division of the Baltimore Salesbook Company

3126 FREDERICK AVENUE, BALTIMORE 29, MARYLAND

For More Information Circle Reader Service Card No. 192

'300' Model Photocopier

The newest addition to the Cormac Photocopy Corp. line is the '300' model. Featured in this machine is Flo-Tronic Control, which transfers the exact amount of developer needed for copying from cartridge to tray when the operator flicks a button. At the end of the day, another flip of the switch circulates the developer back into the cartridge. At the end of each cycle the Flo-Tronic timing mechanism shuts itself off automatically. The device is designed to relieve the operator of any and all contact with chemical handling in the photocopier. Total copying time has also been considerably reduced. The '300' reproduces all types of material 11 inches wide by any length. It is capable of copying ink signatures, pencil or crayon notations, all colors and spirit duplication. Circle No. 121

Reproduction Papers

A plastic coated thermal reproduction paper, that weighs the same as stock papers and prevents brittling and deterioration with age, has been introduced by Stylograph Corp. This Type-S paper is white for greater contrast in reproduction and will copy two-sided material as well as heavyweight papers such as statements. Designed specifically for use in thermal reproduction machines. Circle No. 116

Copies On Request

Insurance Filing — Tab Products Co. has an illustrated leaflet describing improved filing methods by Kenneth A. Chancey, purchasing agent of the American Liberty Insurance Co. A case study. Circle No. 131

Stock Business Forms—A full catalog of forms and accessories offered by the Carteret Printing Co., Inc. Full descriptions, samples and prices. Circle No. 132

Computer Floors—A 12-page booklet, "Computer Pedestal Floor Surfacing," is available from the Armstrong Cork Co. Describes company's Custom Corlon vinyl tile. Circle No. 133

Color Edge Cards — The Friden, Inc. "Color Edge Cards" pamphlet describes the use of color in cards and tapes to provide positive identification. Circle No. 134

Filing Ideas — "Bright Ideas to Make Bright Girls Shine at Filing" is a cleverly worded and informative booklet recently published by the Avery Label Co. For the office manager and the file clerk. Circle No. 135

Model 155 Mimeograph—This A. B. Dick Co. machine is described in a six-page folder. Operation features and accessories available are highlighted. Circle No. 136

Forms Service Described—The services offered by Uarco Inc. are described in a booklet emphasizing the design and production of business forms. Circle No. 137

Facsimile Communications Equipment—The Westrex line of facsimile equipment is described in a four-page brochure offered by Westrex Corp., division of Litton Industries. Equipment for transmitting photos, messages, data, news and other types of graphic information by means of telephone or radio links is shown. Circle No. 138

"AUTOMATABELS...

SO EFFICIENT, SO THRIFTY!"

Start saving up to 10% *right now* with Ever Ready's new pin-feed automatic labels. These amazingly inexpensive "Automatabels" have refashioned automatic labeling and proved a considerable savings for banks, insurance firms, schools, government agencies and virtually every type of business. In three sizes, thrifty "Automatabels" will operate smoothly and effectively in *every* business machine with a pin-feed platen or tractor feed, and in addition, are used extensively in convenient roll form for all platen feed typewriters. "Automatabels" are pressure sensitive and will adhere to almost anything. Their adhesive provides a smooth-as-glass surface when applied to tabulator cards, assuring perfect operation. Ever Ready's 50 years of label experience guarantees the finest quality at quantity prices. Send coupon below today for more detailed information on "Automatabels" and Ever Ready's Label Idea Kit. "Automatabels" come in roll form and fanfolded packs.

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leaders in label printing for almost half a century.

Gentlemen:

☐ Please send me detailed information regarding "Automatabels."
☐ Please send me actual samples of your "Automatabels."
☐ Please send me Ever Ready's Label Idea Kit.

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COMPANY .....
STREET ADDRESS .....
CITY, ZONE, STATE .....

For More Information Circle Reader Service Card No. 177

NEWS

Computer Handles Stock Trading

One operator at a Monrobot IX can handle stock "sell" transactions in a fraction of the time formerly needed by as many as three people. The continuous form is a unique development by Jack Stevens, comptroller of Bruno-Lenchner, Inc.

Programmed expressly for stock market transactions, a Monrobot Mark IX is now handling trades electronically at high speed for Bruno-Lenchner, Inc., Pittsburgh investment firm.

The desk-size unit can compute the principal, commission, state tax, federal tax, Securities Exchange Commission fee, the net amount to the customer, and the net amount to the broker, while detailing the number of shares bought or sold, the price of the trade, the name of the customer and the name of the stock and broker.

The man responsible for the investment adaptation is Jack Stevens, Bruno-Lenchner comptroller. He worked with Monroe engineers to program the system and set up the keyboard which makes it possible for one operator to perform the job of typing, calculating and checking in a fraction of the time previously required.

Utilizing a special 13-part form which Mr. Stevens also designed, the computer operator can produce all of the paper with all of the necessary data on a "sell" transaction within minutes. All that is required is the typing of the name of the stock, the number of shares, the price, the exchange (by code), the type of account (margin, cash, etc.) and the address of the customer and broker. Pushing the proper button is the next step, and the computer does the rest.

Five Insurance Firms To Utilize Scanners

Five insurance companies have recently placed orders for the Farrington Optical Scanner to aid in the paperwork problems involved in premium billing.

Farrington officials named the Mutual Benefit Life Insurance Co. of Newark, N. J.; St. Paul Fire and Marine Insurance Co.; Northwestern Mutual Life Insurance Co. of Milwaukee; Mutual Benefit Health and Accident Association (Mutual of Omaha), and the Franklin Life Insurance Co. of Chicago.

Tri-State NMAA Plans Conference

An I.M.O. (Indiana-Michigan-Ohio) Conference has been scheduled for October 13-14, at the Statler-Hilton Hotel in Detroit, under the auspices of Tri-State, Division 5, National Machine Accountants Association.

Talks, seminars, workshops and forums on "Ideas—Management—Operations" are planned for the two-day program.

Some of the subjects include: "Evaluating Your Data Processing Installation," "Future of Optical Character Sensing," and "Human Element in Automation and a Long Range View of the Clerical Labor Market."

Eastern Editor

Thom Grant has been named to the post of Eastern Editor for MANAGEMENT AND BUSINESS AUTOMATION by Charles W. Gilbert, executive publisher.

Grant served as director of public relations for Luther College in Wahoo, Neb., before joining the MBA staff. He is a graduate of Wagner College in Staten Island, N. Y., and formerly served in the news department of the Union Register, Union, N. J.

ARMA Expects 1000 At Workshop

Nearly 1,000 delegates and guests are expected to attend the American Records Management Association's 1960 workshop session, October 19-20 in the Plankinton House, Milwaukee, Wis. Immediately following, ARMA will hold its annual meeting on October 21-22.

The two-day workshop program has been scheduled to cover all facets of record management, including records simplification, form design, filing, flow charts, storage and microfilm applications and techniques.

Beamed to attract key records management personnel in business, government and industry, special "Hi-Fi Records" seminars have been programmed under the co-chairmanship of Donald A. Schauer, Budget Bureau, City of Milwaukee, and Hubert E. Wieben, the American Appraisal Co., Milwaukee.

Third Northwest JCC Meets in Portland

The third annual Northwest Joint Computing Conference will open September 30 for a two-day session at the Multnomah Hotel in Portland, Ore.

Approximately 450 are expected to attend the meetings which feature a series of workshops, exhibits and prominent guest speakers on various computer-use subjects.

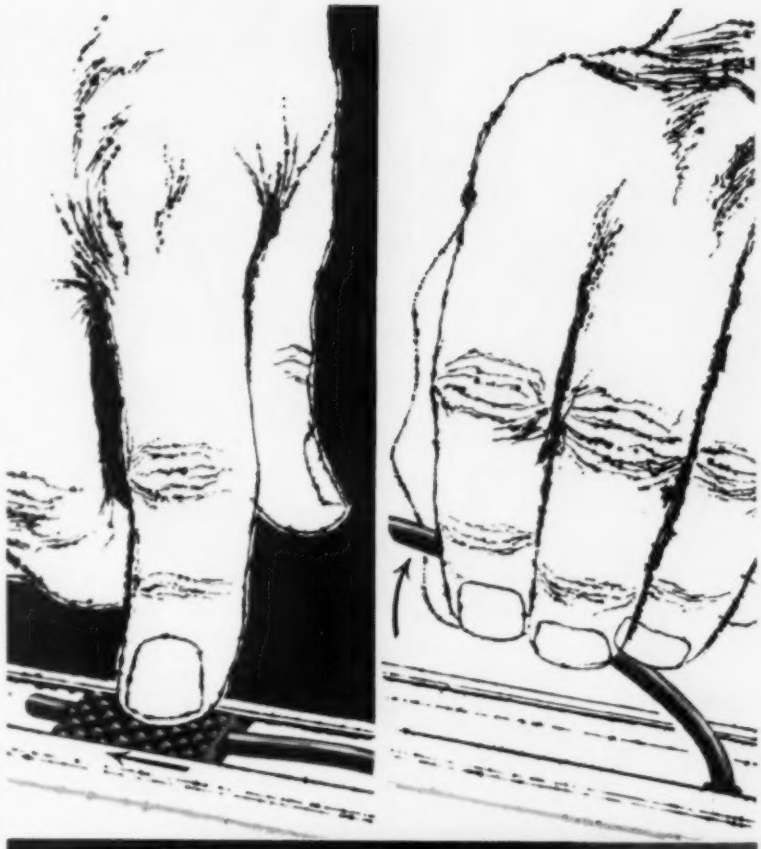
Uarco, Inc. Forms Service Subsidiary

The Uarco Equipment Service Corp., a new subsidiary in support of machine accounting installations, has been announced by Uarco, Inc.

The service arm of the company will offer annual agreements for preventive maintenance and emergency repairs of the company's bursters and other processing machines.

Schedule Conference On Records Management

The annual conference and workshop on records management is being arranged by Record Controls, Inc. for September 29-30 at the Drake Hotel in Chicago.



Here's a $6.10 value for $4.00

Just to get introduced to you — These two binders are the best for marginal punched forms used with data processing equipment. Both binders have the same type of locking mechanism top and bottom. Just push the slides together. Up come the cable posts. Off come the covers. You can load from the top — unload from the bottom. When it is time to store the records, you change the covers instead of the sheets. Think of the time you save.

SPECIAL OFFER
Cable-Post Binder | Cable-Post Jr. | 6.10 value
BOTH FOR ONLY 4.00*

NATIONAL BLANK BOOK COMPANY
Dept. 1110, Holyoke, Mass.
Please send Cable-Post and Cable-Post Jr. Binders for $4.00. Sample sheet is attached or my sheet size is .....
My forms are bursted ☐ unbursted ☐
Name .....
Company .....
Street ..... City ..... State .....
My office supply dealer is .....
*Offer expires Jan. 1, 1961
NBO-23

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MACHINES
MANPOWER
METHODS

USE OUR COMBINATION —
CUT YOUR DATA PROCESSING COSTS

Processing is done at our service centers—you only pay for *actual production* time per application. Costs are known in advance, results can be counted on because of our depth in—"Machines—Manpower—Methods".

No investment in rental, purchase and housing of machines, hiring and keeping personnel, or costly man-hours in working out handling methods.

Payroll Preparation • Sales Analyses • Accounts Payable & Receivable • Research Tabulation • Inventory Control — and many other statistical requirements, regardless of volume can be efficiently and economically handled at R & S.

We have proved our cost reducing and result getting data processing services to a cross-section of American business. We'd like to prove them to you—
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Chicago: 223 W. Jackson Blvd., Chicago 6, Ill. HArrison 7-7357
San Francisco: 560 Sacramento St., San Francisco 11, Cal. EXbrook 2-4341
Montreal: 407 McGill St., Montreal, Canada. Victor 2-3831
Toronto: 439 Wellington St., W., Toronto, Canada. EMpire 3-4951
For More Information Circle Reader Service Card No. 191

D. L. Bibby Named Rem-Rand President

Dause L. Bibby has been named president of the Remington Rand division of the Sperry Rand Corp.

He succeeds Kenneth R. Herman who will devote his full time to the position of executive vice president in the Sperry Rand central office.

Mr. Bibby joined the company as executive vice president of the Rem-Rand division in 1959.

Recent Appointments

Booz, Allen & Hamilton — in a major expansion move, the nationwide management consultant firm has increased its consulting staff for Management Information Systems. Seven new consultants have been added to the firm: Louis E. Albright, Robert J. Gillmore, Charles L. Mack, Dale L. Reistad (New York office), Carlton L. Dudley, Jr., Walter W. Faster (Chicago office), and John H. Yienger (Los Angeles office).

Eagle-Picher Co. — The board of directors has elected Harold E. Anderson to the post of comptroller.

C-E-I-R — Three senior staff members have been elected to vice president positions. They are: Dr. Jack Moshman, director of technical sciences department, Arlington Research Center; William Orchard-Hays, director Southwest Regional Office, Houston; and Dr. J. Paul Walsh, director, Arlington Research Center.

The Sperry Hutchinson Co.—Allen Vesley has been promoted to supervisor of the programming and systems section of the company.

MBA Reviews

The Waste Makers

By Vance Packard. Published by David McKay Co., Inc., 119 W. 40th St., New York. Price $4.50.

Planned obsolescence rears its ugly head as the creeping cancer of the "good life" in Vance Packard's latest attack on the American producer, promoter and consumer of goods.

He singles out the automotive and appliance industries as major aggressors in the war to undermine values, and he doesn't hesitate to take pot shots at the gullible, middle-class market which absorbs the largest share of these products.

He charges that manufacturers and advertising agencies have promoted the theory and practice of "consumption for consumption's sake" to the disadvantage of the American consumer. His writing is characterized by an overwhelming number of carefully chosen and organized "devil-quoteth-scripture" quotations which picture a depressing view of post World War II American life as a selfish money-making-spending proposition aimed at acquiring goods for goods sake.

Like other critics of the present socio-economic system, he expresses alarm at the effects of motivational research and advertising on the average American — who, in his opinion, is not showing signs of discrimination or intelligence in accumulating worldly goods. His suggestion, again like that of the other critics, is reform in the shape of legislation. Standardization is one answer to offset "widespread unemployment created by the relentless rise in manhour output in the nation's automated factories and offices." He cries for ethics from management (who help to foster the creeping evil) and he asks for Americans to take a more wholesome view of the "good life."

His answers to the problem, however, are more "sweetness and light" panaceas which do not offer clear-cut solutions. He asks for a physical, spiritual and political change to take place based on a challenge which people are not aware exists.

EDP Idea Finder

Published by Canning, Sisson and Associates, Inc., 1140 South Robertson Boulevard, Los Angeles 35. $69.00.

A composite of all significant EDP articles, talks, papers and books during the crucial development years of electronic data processing, 1957 to 1959, is offered by the publishers of the Data Processing Digest. These items have been digested, classified by subject, arranged in logical sequence and completely cross-indexed for quick accessibility to extensive EDP subjects or ideas.

Such areas as account numbering systems, EDP feasibility studies, selecting EDP equipment are covered in theoretical and practical aspects. Newer fields such as automatic programming, information retrieval and automatic teaching are included in this symposium.

Besides its 550 pages of listings, facts and condensations, the book includes commentaries by EDP authorities Richard G. Canning and Roger L. Sisson. This book is designed and prepared with practicality in mind, considering the vast amount which has been written about EDP.

Major headings include subjects such as; The Role of ECP in Management, Design of the EDP System, Social, Organizational and Personnel Consideration, Equipment and Equipment Techniques, Physical Installation, Management Sciences and Advanced Information Processing and EDP Outside the U. S. A.

An extensive, well-prepared section on applications includes; airlines, banking, civil engineering, computing centers, credit, government (federal, state, city and county), insurance, inventory control, material control and production control, order processing, payroll, personnel record-keeping, public utilities, purchasing, railroads, research and development, retail sales, stock and bond transaction handling and traffic. This book represents a major job of librarianship and cataloging that would be almost impossible to duplicate independently. Decidedly worth looking into.

SPACE FOR YOUR RECORDS! NO SHELVING NEEDED!

We manufacture unique new files for storing your inactive records—and no shelving needed. They are lightweight and easy to handle. Filing and finding remains a girl-size job at all times.

We call them **TANDEM Storage Files** because two trays, each 12 by 10 by 15 inches set "in tandem" in their own self-stacking bins . . . Bins actually build a framework of steel to support your records and can be stacked to the ceiling if desired.

Let us send you case histories telling how leading firms such as Republic Aviation, Esso, the Swiss Bank Corp., Maytag Co. and others have saved more than 25% of available floor space through their use.

Send for Tandem Case Histories, FREE Manual of Record Storage Practise, plus complete products catalog. Clip ad to letterhead and mail to: **Dept. MBA-10.**

BANKERS BOX COMPANY
Record Storage Specialists Since 1918
2807 N. 25th Ave., Franklin Park, Ill.

Circle Reader Service Card No. 186

finding and filing *takes just Seconds*

with BARKLEY TAB GUIDES

Modern offices use Barkley Tab File Guides because they make the job so easy. How? Well, each tab is both angled and magnified—takes only a glance to find the file you want. And Barkley Tabs are durable—stand up under constant use for years. The next time you make up your supply list . . . *be sure to add Barkley Tab File Guides . . . at the top.*

At all leading stationers.

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1220 W. VAN BUREN ST. • CHICAGO 7, ILL.

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Programming Training Courses

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PROGRAMMING FOR

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Prepare now for the
new generation of
Accounting Machines

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Over 4 years experience in
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Gardner "FOTOCOPY" MADE IN U.S.A. — 39¢ BLACK

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'Space-Age' Hospital *Continued from page 29*

ance company and one for the patient are posted, and a by-product produced is a trial balance at the completion of the night's work.

The final charge posted to most patient accounts is for telephone calls which have been gathered by the metering system. This automatic unit was installed by General Telephone Co. It is similar to systems now in operation in major hotels which permit direct calls from rooms.

Mr. Lake pointed out that the hospital is in the process of converting payroll, accounts payable and general ledger accounting to an NCR Computronic which will be installed within the next few months.

In his estimation every phase of the hospital operation which can be successfully automated to save both time and lives is an important step forward—whether it is in the operating room or the business office.

"Greater efficiency of operation through electronic equipment results in improved care at no increase in cost," Mr. Lake explained, and in some cases the costs can be cut. Accordingly, Memorial Hospital, which was formerly the Seaside Hospital of Long Beach, was able to announce lower rates for 22 services when the doors of the new center were opened.

The wonders of electronic equipment, which help to provide a patient with better care, have joined forces with business automation to give them better service in this "space age" medical center. ■

next month . . .

Information Retrieval

An exclusive MBA depth interview with Frederick Jonker, a pioneer in the field of information retrieval, reveals his system for searching large collections of information for specific data to solve a particular problem or answer a particular question.

Environment for EDP

The physical requirements for an electronic data processing department are detailed by one of the nation's top authorities in the computer facility field.

MBA's Calendar

October 10-12—International Systems Meeting (SPA). Hotel Commodore, New York City. Write International Headquarters, Systems & Procedures Association, 4463 Penobscot Bldg., Detroit 26, Mich.

October 10-12—National Convention, NABAC, the Association for Bank Audit, Control and Operation. Statler Hotel, Los Angeles, Calif. Information from Jack Craddock, NABAC, 38 So. Dearborn St., Chicago 3, Ill.

October 10-12—18th National Meeting of the Operators Research Society of America at the Statler Hotel in Detroit, Michigan.

October 19-22—American Records Management Association's Annual Convention and Records Management Workshop, at the Plankinton House, in Milwaukee, Wisc. Write: ARMA, 10600 Puritan Ave., Detroit 38, Mich.

October 20-22—Seventh International Meeting of the Institute of Management Sciences. Hotel Roosevelt, New York City. Session on Computers in Simulation. Information from James Townsend, 30 East 42nd St., New York 17, N. Y.

October 22-26—29th Annual National Conference of the Controllers Institute of America at the Hotel Fairmont in San Francisco, Calif.

October 24-28—National Business Show, Office Executives Association. At the Coliseum, New York City. Contact George H. Gutekunst, Jr., NBS, 530 Fifth Ave., New York 36, N. Y.

October 26-27—Computer Application Symposium sponsored by the Armour Research Foundation of the Illinois Institute of Technology, Morrison Hotel, Chicago. Write Andrew Ungar, Armour Research Foundation, 10 W. 35th St., Chicago 16, Ill.

October 27-28—Annual Fall Conference, Society for Advancement of Management, Hotel Biltmore, N.Y.C. Write: S.A.M., 74 Fifth Avenue, New York 11, N. Y.

October 31-November 4—Seventh Institute on Electronics in Management will discuss current developments in ADP Systems held at and sponsored by The American University, Washington, D. C. More information from: Dr. Lowell H. Hattery, Dir. SIEM, The American University, 1901 F St., N.W., Washington 6, D. C.

November 1-4—The Business Equipment Exposition, second major equipment show sponsored by the Office Equipment Manufacturers Exhibits, Inc., at the Los Angeles Memorial Sports Arena in Los Angeles, Calif. Write: OEME Headquarters, 777 14th St., N. W., Washington 5, D. C.

December 3-6—International Visual Communications Congress, sponsored by the Society of Reproduction Engineers and the Association of Professional Draftsmen, Sherman Hotel, Chicago. Write: V.C.C., 10600 Puritan Ave., Detroit 37, Mich.

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EDITORIAL

Salute to SPA

The leaders of the Systems and Procedures Association are to be commended for the ambitious program that will be presented to the membership at the annual International Systems Meeting later this month in New York City.

Their stated purpose for the meeting: "To provide members with up-to-date knowledge, first hand experience and on-the-spot demonstrations of systems and procedures techniques—and their relationship to management objectives." The excellent program (MBA, Sept. '60) offers every promise of fulfilling the purpose.

Recent years have brought the systems man into clearer focus in the business world. No longer is his operation considered a part-time endeavor or a management luxury. The day of the "efficiency expert," complete with spyglass and stopwatch, are gone. Today, the systems department is a vital necessity for business, large or small. The executive who fails to recognize this fact is whistling through a quill pen.

It is encouraging to find members of the systems profession assuming their rightful role as participants on the top management team—pioneering the "total" systems concepts and furthering the cause of integrated data processing. But, the profession as a whole still faces its greatest challenge: the pressing need to up-date methods know-how of individual members that they might keep pace with the many new equipment developments and techniques being introduced by manufacturers of business automation equipment.

Any lag in this endeavor will be serious. The present decade seems certain to produce a new high in business competition. Failure of systems personnel to acquaint their management with the very latest tools available may well prove fatal to the firm's entire operation.

The program of the New York meeting indicates SPA's awareness of the situation—and its seriousness. The time and cost involved in sending a representative to the meeting would seem a prudent investment to any company with a stake in the future. Certainly every systems man should want to be there. A progressive management will insist that he be there.

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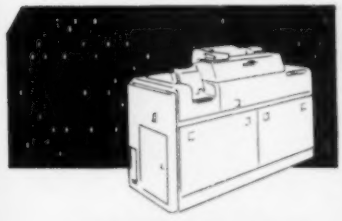

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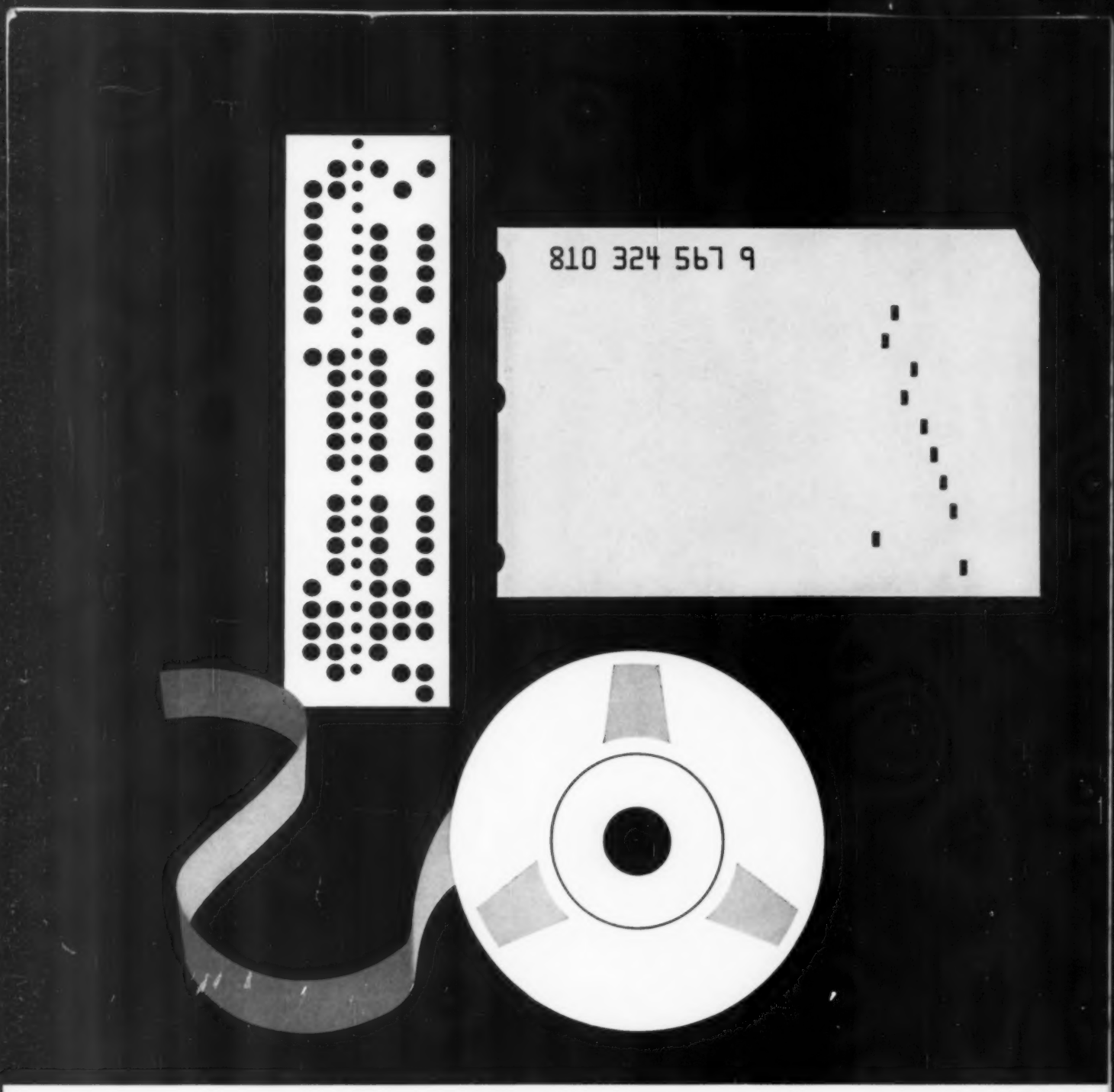

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